MASPRO

MASPRO SATELLITE RECEIVING SYSTEM

SATELLITE RECEIVER

Frequency Range 950-1750MHz

SRE-80R

PLL Frequency Synthesizing Tuning

Service Manual

ADJUSTMENT PROCEDURE

I. MEASURING INSTRUMENTS

To perform adjustments on the receiver model SRE-80R, the measuring instruments shown below are required.
All instruments shall be calibrated.

a) DVM (Digital Voltmeter)
Measuring range : 0.1 to 500 V AC
0.01 to 100 V DC

b) Oscilloscope/Synchroscope
Measuring range : 0.01 to 10 V/Div.
Frequency range : DC to 20 MHz
Probe : 10:1

c) TV test signal generator (PAL system)
(Used as video signal source)

d)○ Audio signal generator
(Used as an audio signal source)
Frequency range : 50 Hz to 15 kHz

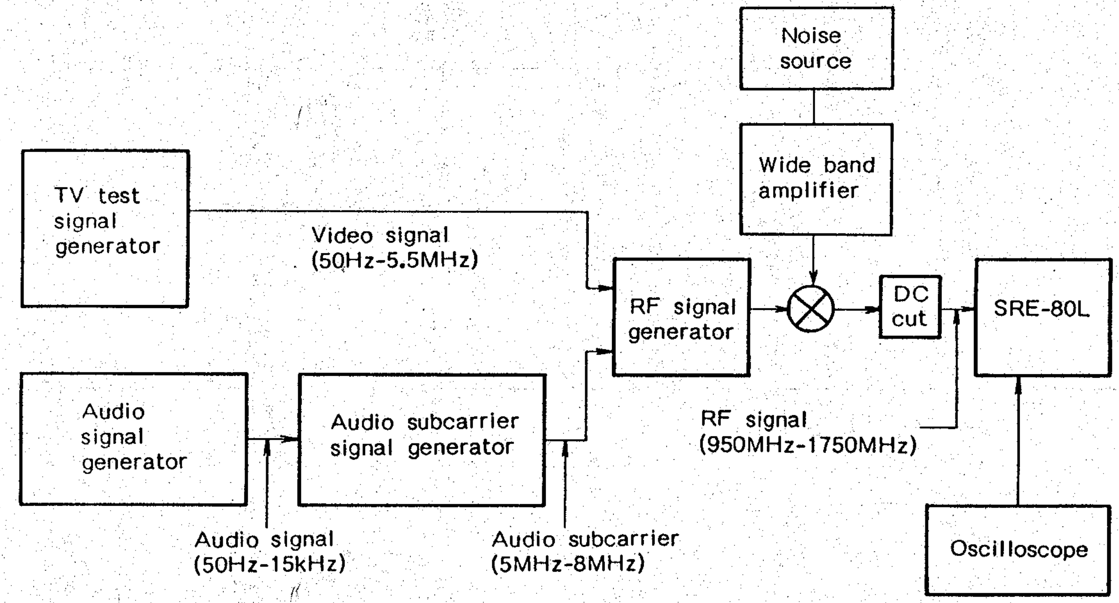
e) RF signal generator
(Used as a RF signal source)
having wide FM deviation and CCIR REC. 405, 625-line video pre-emphasis functions.
Frequency range : 950 to 1,750 MHz
FM deviation : 25 MHz p-p
Output level : -60 to -20 dBm

f) Signal generator
(Used as an audio subcarrier source)
having frequency modulation and audio pre-emphasis functions.
Frequency range : 5 to 8 MHz
FM deviation : ±1 MHz maximum

g) Spectrum analyzer
Frequency range : Over 400 MHz

h) Frequency counter
Frequency range : 0 to 20 MHz,

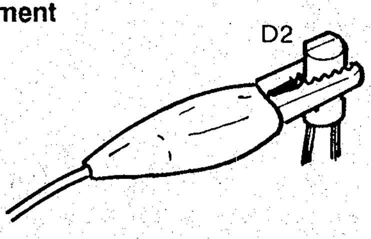
II. MEASURING INSTRUMENTS CONNECTION

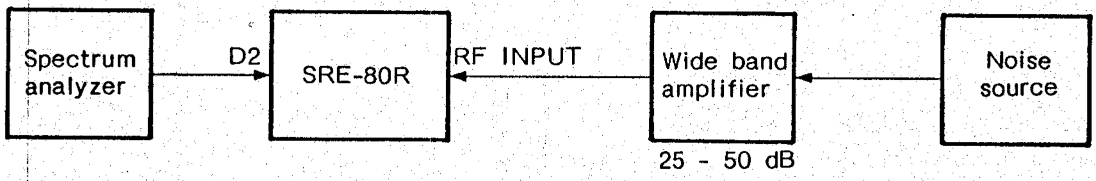

Noise source
Wide band amplifier
TV test signal generator
Video signal (50Hz-5.5MHz)
RF signal generator
DC cut
SRE-80L
Audio signal generator
Audio subcarrier signal generator
RF signal (950MHz-1750MHz)
Audio signal (50Hz-15kHz)
Audio subcarrier (5MHz-8MHz)
Oscilloscope

IMPORTANT: If the receiver is connected to the AC power, do not connect the RF signal generator directly to the "RF INPUT" terminal of the receiver. The RF signal generator may be damaged by the +18V powering voltage from the receiver. Be sure to use "DC CUT" coupler.

III. RF SIGNAL ADJUSTMENT

- **IF band width adjustment**



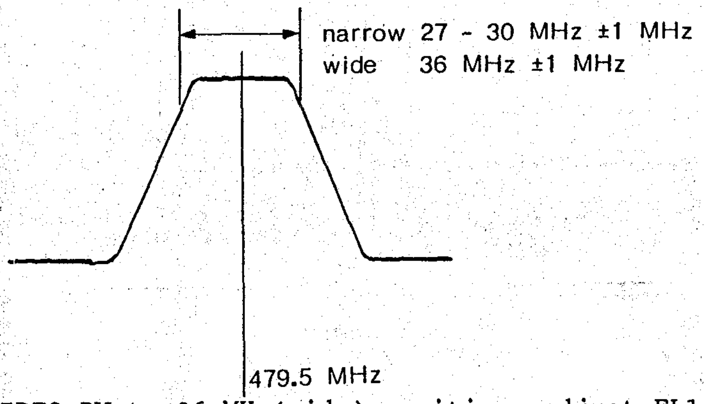

Spectrum analyzer
D2
SRE-80R
RF INPUT
Wide band amplifier
25 - 50 dB
Noise source

1. Set the receiver as follows.

SCAN/PROG : SCAN position
AFC : any position
POLARIZATION : any position
VIDEO BW : any position
AUDIO BW : any position
DE-EMPHASIS : any position
CHANNEL : 40 channel
AUDIO TUNE : any position

2. Connect the noise source generator, wide band amplifier to "RF INPUT", spectrum analyzer to D2 on the main board (PTBME2001A).
   * Adjust L8 so that the proper band width adjustment without free-run frequency interference is allowed.

3. Set the VIDEO BW to 30/27 MHz(narrow) position, adjust FL2(herical coil) that the wave shape is substantially as shown below.



4. Reset the VIDEO BW to 36 MHz(wide) position, adjust FL1(herical coil) that the wave shape is substantially as the above.

● Discriminator free-run frequency adjustment

1. Set the receiver as follows.

   SCAN/PROG : SCAN position
   AFC : OFF position
   POLARIZATION : any position
   VIDEO BW : any position
   AUDIO BW : any position
   DE-EMPHASIS : any position
   CHANNEL : any channel
   AUDIO TUNE : any position

2. Connect the hot terminal of spectrum analyzer to the shield case of second converter.
3. Adjust L8 for 479.5 MHz ±0.5 MHz.

● AFC adjustment

1. Set the receiver as follows.

   SCAN/PROG : SCAN position
   AFC : OFF position
   POLARIZATION : any position
   VIDEO BW : any position
   AUDIO BW : any position
   DE-EMPHASIS : any position
   CHANNEL : 40 channel
   AUDIO TUNE : any position

2. Connect dual channel oscilloscope to pin 4 and pin 5 of connector YC14 on the main board (PTBME2001A).

3. Set the RF signal generator as follows.

   Frequency : 1345 MHz
   Output level : -45 dBm at the receiver input.
   Deviation : without
   Pre-emphasis : CCIR Rec. 405, 625-line.

4. Adjust the potentiometer RV1 so that the level at both points are HIGH.

   * The free-run frequency adjustment should have done before AFC adjustment. While AFC adjustment, set the AFC to OFF, center the "FINE TUNE" control by inputting a proper channel number.

● AGC adjustment

1. Set the receiver as follows.

   SCAN/PROG : SCAN position
   AFC : OFF position
   POLARIZATION : any position
   VIDEO BW : any position
   AUDIO BW : any position
   DE-EMPHASIS : any position
   CHANNEL : 40 channel
   AUDIO TUNE : any position

2. Set the RF signal generator as follows.

   Frequency : 1345 MHz
   Output level : -20 to -60 dBm
   Deviation : without
   Pre-emphasis : CCIR Rec. 405, 625-line.

3. Set "TEV" on the front panel to its clockwise fully, apply a TV test signal.

4. Set the RF signal generator output to -20 dBm, adjust potentiometer RV2 for clear picture on the monitor TV set. Reduce the RF signal output to -60 dBm, verify the picture is without noise.

● Signal meter adjustment

1. Set the receiver as follows.

   SCAN/PROG : SCAN position
   AFC : any position
   POLARIZATION : any position
   VIDEO BW : any position
   AUDIO BW : any position
   DE-EMPHASIS : any position
   CHANNEL : 40 channel
   AUDIO TUNE : any position

2. Apply a 1450 MHz, -45 dBm RF signal.

3. Adjust potentiometer RV3 so that the 10th LED in the SIGNAL meter is just extinguished.

   * The AGC ADJUSTMENT should have done before METER ADJUSTMENT.

IV. VIDEO SIGNAL ADJUSTMENT

● Video output level adjustment

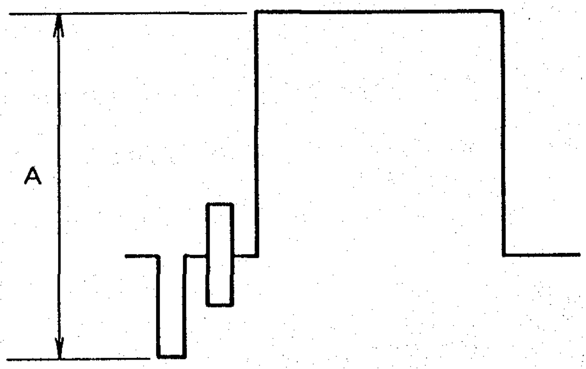
1. Set the receiver as follows.

SCAN/PROG : SCAN position
AFC : OFF position
POLARIZATION : any position
VIDEO BW : any position
AUDIO BW : any position
DE-EMPHASIS : any position
CHANNEL : 40 channel
AUDIO TUNE : any position
TEV : fully clockwise
MEMORY LOCK : any position(rear)
VIDEO LPF : 5.5 MHz position(rear)
VIDEO LEVEL : maximum position(rear)
VIDEO CLAMP : CLAMP position(rear)

2. Set the RF signal generator as follows.

Frequency : 1345 MHz
Output level : -45 dBm level at the receiver input.
Deviation : 25 MHz p-p
Pre-emphasis : CCIR Rec. 405, 625-line.
TV test signal : White 100 %

3. Set the "VIDEO LEVEL" (VR1) control on the rear pannel to its minimum position, adjust potentiometer RV4 so that the video output level is 0.5 Vp-p at "VIDEO OUT" terminated with 75 ohm resistor.(A = 0.5 Vp-p)



4. Adjust the "VIDEO LEVEL" control for 1 Vp-p video output level.(A = 1 Vp-p)

● CBB(Composite Base Band) level adjustment

1. Set the receiver and signal generator as the above.

2. Adjust potentiometer RV5 so that the composite base band output level is 1 Vp-p at "COMPOSITE BASE BANDE OUT" terminated with 75 ohm resistor.

V. AUDIO SIGNAL ADJUSTMENT

● Tuning adjustment

1. Set the receiver as follows.

SCAN/PROG : SCAN position
AFC : OFF position
POLARIZATION : any position
VIDEO BW : any position
AUDIO BW : any position
DE-EMPHASIS : 50/75 uS position
CHANNEL : 40 channel
AUDIO TUNE : any position

2. Set the RF signal generator as follows.(TV test signal generator OFF).

Frequency : 1345 MHz
Output level : -45 dBm level at receiver input.

3. Set the audio signal generator and subcarrier as follows.

Frequency : 8 MHz
Deviation : ±150 kHz
Modulation : 1 kHz

4. Set the audio subcarrier to "VARIABLE".

5. Rotate potentiometer RV6 to its minimum position.

6. Adjust T3 for maximum noise level at "AUDIO OUT".

7. Set the "VARIABLE" to its maximum (8 MHz) position, adjust T4 for maximum and clear wave shape on the scope.
8. Set the receiver to 6.5 MHz position, subcarrier to 6.5 MHz, then adjust "6.5 MHz AUDIO SUBCARRIER" on the front panel for maximum and clear wave shape on the scope.
9. Repeat for 6.6/6.65 MHz position, but use a 6.625 MHz audio subcarrier.

● Audio deviation adjustment

1. Set the receiver as follows.

SCAN/PROG : SCAN position
AFC : OFF position
POLARIZATION : any position
VIDEO BW : any position
AUDIO BW : any position
DE-EMPHASIS : 50/75 uS position
CHANNEL : 40 channel
AUDIO TUNE : any position

2. Set the RF signal generator as follows. (TV test signal generator OFF).

Frequency : 1345 MHz
Output level : -45 dBm level at receiver input.

3. Set the audio signal generator and subcarrier as follows.

Frequency : 6.5 MHz
Deviation : ±150 kHz
Modulation : 1 kHz

4. Set the "AUDIO BW" to 300 kHz(narrow) position. Adjust the "VARIABLE" control for maximum wave shape on the scope.

5. Reset the modulation to 15 kHz, rotate potentiometer RV8 (counter-clockwise) for maximum and clear audio output wave shape, then adjust it for 2 dB lower(clockwise) than that point.

6. Reset the "AUDIO BW" to 1 MHz(wide) position, audio subcarrier for 6.5 MHz, ±400 kHz deviation, 15 kHz modulation.

7. Rotate potentiometer RV7 (counter-clockwise) for maximum and clear audio output wave shape, then adjust it for 2 dB lower(clockwise) than that point.

● Audio level adjustment

1. Set the receiver as follows.
    SCAN/PROG : SCAN position
    AFC : OFF position
    POLARIZATION : any position
    VIDEO BW : any position
    AUDIO BW : any position
    DE-EMPHASIS : 50/75 uS position
    CHANNEL : 40 channel
    AUDIO TUNE : 6.5 MHz position

2. Set the RF signal generator as follows.
    Frequency : 1345 MHz
    Output level : -45 dBm level at receiver input.

3. Set the audio signal generator and subcarrier as follows.
    Frequency : 6.5 MHz
    Deviation : ±500 kHz
    Modulation : 400 Hz

4. Set the "AUDIO BW" to 1 MHz(wide) position, adjust potentiometer RV9 for +10 dBm audio output at "AUDIO OUT".

5. Set audio signal generator and subcarrier for 6.5 MHz, ±150 kHz deviation. Repeat for the 300 kHz(narrow) position, but adjust potentiometer RV10.

● Audio mute adjustment

1. Set the receiver as follows.
    SCAN/PROG : SCAN position
    AFC : OFF position
    POLARIZATION : any position
    VIDEO BW : any position
    AUDIO BW : any position
    DE-EMPHASIS : 50/75 uS position
    CHANNEL : 40 channel
    AUDIO TUNE : 6.5 MHz position

2. Set the RF signal generator as follows.
    Frequency : 1345 MHz
    Output level : -45 dBm level at receiver input.

3. Set the audio signal generator and subcarrier as follows.
   Frequency : 6.5 MHz
   Deviation : ±500 kHz
   Modulation : 400 Hz

4. Adjust potentiometer RV6 so that the audio output is just obtained.

5. After adjustment, check that audio output is muted while the subcarrier is detuned.

VI. POLARIZER ADJUSTMENT

● Polarizer control pulse adjustment (1) --------------- Applicable Serial Nos. 6395000 - 6432999

1. Set the receiver as follows.
   SCAN/PROG : SCAN position
   AFC : any position
   POLARIZATION : HORIZ position
   VIDEO BW : any position
   AUDIO BW : any position
   DE-EMPHASIS : any position
   CHANNEL : 40 channel
   AUDIO TUNE : any position

2. Connect the oscilloscope to ⎍ terminal of "POLARIZER" on the rear panel.

3. Set the POLARIZATION to HORIZ, the SKEW to its maximum position.

4. Adjust potentiometer RV11 for 1.52 mS ±0.2 mS on the scope.

5. Check for the "VERT" position, it shold be 2.0 mS ± 0.2 mS.

NOTE :

Some polarswitchers have another control pulse width.
The following adjustment procedure will fine tune their polarization controls.

1. Hookup LNB, polarswitcher and monitor TV set to the unit.

2. Set the skew control in the center of its travel using the remote control unit.

3. Set the polarization to the "HORIZ" position.

3. Adjust potentiometer RV11 for the best picture quality on the chosen polarity.

5. Repeat for the "VERT" polarity.

- **Polarizer control pulse adjustment (2) -------------- Applicable Serial Nos. from 7076000**

1. Set the receiver as follows.

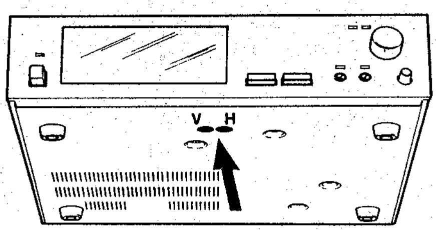
SCAN/PROG : SCAN position
AFC : any position
POLARIZATION : HORIZ position
VIDEO BW : any position
AUDIO BW : any position
DE-EMPHASIS : any position
CHANNEL : 40 channel
AUDIO TUNE : any position

2. Connect the oscilloscope to ⎍ terminal of "POLARIZER" on the rear panel.

3. Set the POLARIZATION to HORIZ, the SKEW to its maximum position.

4. Adjust potentiometer RV11-H for 2.0 mS on the scope.

5. Change the POLARIZATION to the VERT, adjust potentiometer RV11-V for 1.3 mS.



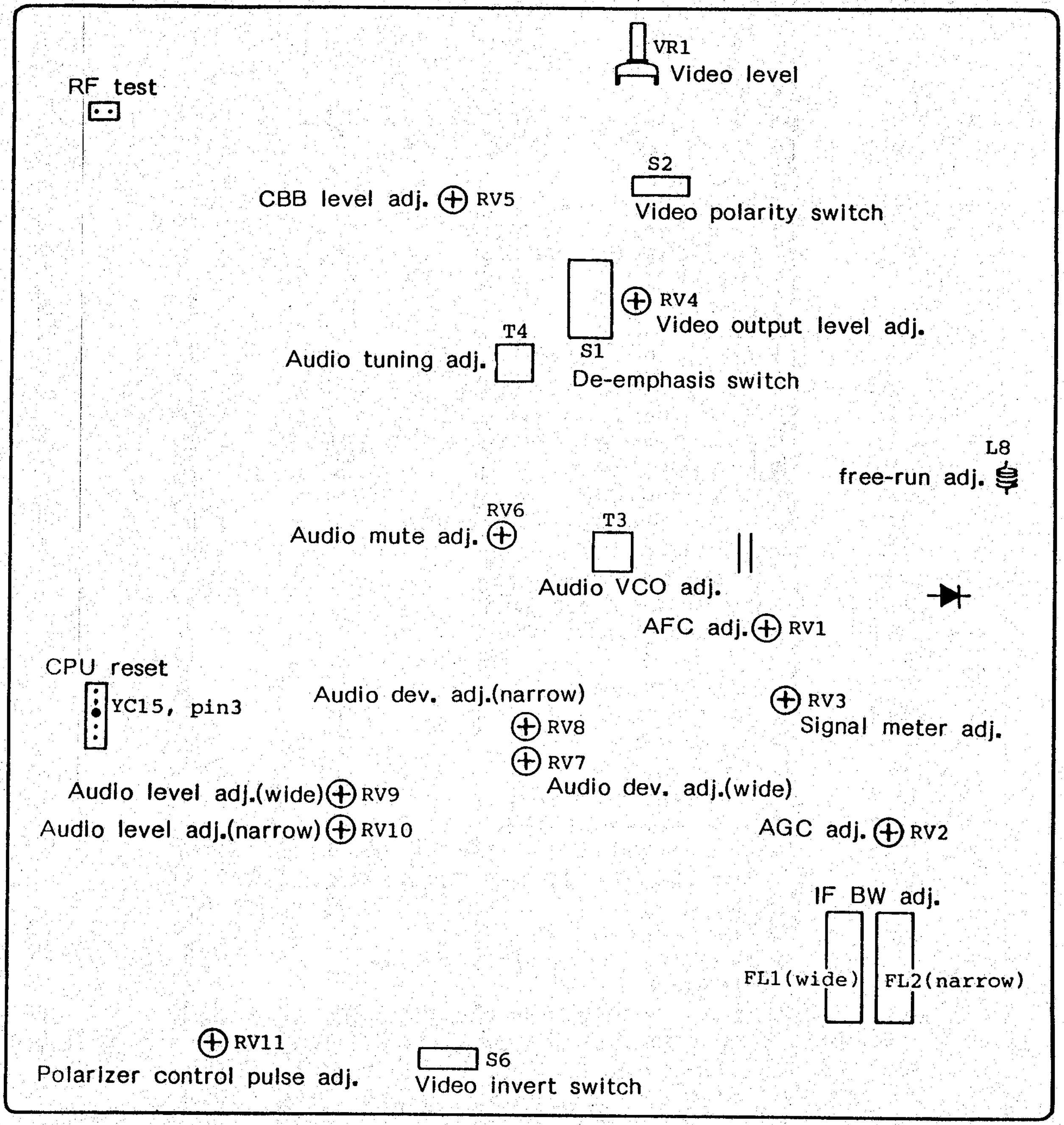
- **How to clear the memory.**

1. Disconnect the power cord from the AC outlet.

2. Short the pin 1 and the pin 3 of the connector YC15 for a few seconds. The memory of CPU is reset as follows:

Programmed Channel	SCAN Channel	Service	Satellite	LNB Input Frequency (MHz)	LNB Output Frequency (MHz)	Polarity	Video Bandwidth	Audio Tune (MHz)	Audio Bandwidth	Pre-emphasis	AFC
1	04	TELE CLUB	ECS 1	10986	986	Vert	Wide	6.50	Narrow	75 μS	ON
2	15	RTL PLUS	ECS 1	11091	1091	Vert	Wide	6.60/6.65	Narrow	50 μS	ON
3	20	Film Net	ECS 1	11140	1140	Vert	Wide	6.60/6.65	Narrow	J.17	ON
4	56	SAT 1	ESC 1	11507	1507	Vert	Wide	6.60/6.65	Narrow	50 μS	ON
5	73	SUPER CHANNEL	ECS 1	11674	1674	Vert	Wide	6.60/6.65	Narrow	50 μS	ON
6	06	RAI	ESC 1	11005	1005	Horiz	Wide	6.60/6.65	Wide	50 μS	ON
7	11	—	—	11055	1055	Horiz	Narrow	6.60/6.65	Narrow	50 μS	ON
8	23	3 SAT	ECS 1	11170	1170	Horiz	Wide	6.60/6.65	Narrow	50 μS	ON
9	53	TV-5	ECS 1	11471	1471	Horiz	Wide	6.60/6.65	Wide	J.17	ON
10	57	Worldnet	ECS 1	11508	1508	Horiz	Wide	6.60/6.65	Wide	J.17	ON
11	70	SKY CHANNEL	ECS 1	11650	1650	Horiz	Narrow	6.60/6.65	Narrow	50 μS	ON
12	07	CHILDREN'S CHANNEL Premier	Intelsat (27.5W)	11015	1015	Horiz	Narrow	6.60/6.65	Narrow	50 μS	ON
13	19	Life Style Screen Sport	Intelsat (27.5W)	11135	1135	Horiz	Narrow	6.60/6.65	Narrow	50 μS	ON
14	23	—	—	11175	1175	Vert	Narrow	6.60/6.65	Narrow	50 μS	ON
15	21	CNN	Intelsat (27.5W)	11155	1155	Horiz	Narrow	6.60/6.65	Narrow	50 μS	ON
16	19	Music Box	Intelsat (60 E)	11135	1135	Horiz	Narrow	6.60/6.65	Narrow	50 μS	ON
17	23	BR3	Intelsat (60 E)	11173	1173	Horiz	Narrow	6.60/6.65	Narrow	50 μS	ON
18	80	—	—	11745	1745	Horiz	Narrow	Variable	Wide	50 μS	OFF

VII. ADJUSTMENT POINTS


VR1
Video level
RF test
S2
CBB level adj. RV5
Video polarity switch
RV4
Video output level adj.
T4
Audio tuning adj.
S1
De-emphasis switch
L8
free-run adj.
RV6
Audio mute adj.
T3
Audio VCO adj.
AFC adj. RV1
CPU reset
YC15, pin3
Audio dev. adj.(narrow)
RV8
RV7
Audio dev. adj.(wide)
RV3
Signal meter adj.
Audio level adj.(wide) RV9
Audio level adj.(narrow) RV10
AGC adj. RV2
IF BW adj.
FL1(wide)
FL2(narrow)
RV11
Polarizer control pulse adj.
S6
Video invert switch

CPU PIN FUNCTION TABLE (U402)

pin No.	signal	I/0	description
1	-	-	Not used.
2	-	-	Not used.
3	SCAN	0	Key scan signal.
4	DISP a	0	Display data a.
5	DISP b	0	Display data b.
6	DISP c	0	Display data c.
7	DISP d	0	Display data d.
8	DISP e	0	Display data e.
9	DISP f	0	Display data f.
10	DISP g	0	Display data g.
11	-	-	Not used.
12			Connected to +5 V.
13	VDISP	-	Connected to ground.
14	V/H	0	Turns the VERT and HORI indicator. High to turn HORI.
15	REMCON DATA	I	Remocon data signal.
16	INTO	I	Remocon data signal.
17	AFC	0	Turns the AFC indicator on or off, High for on.
18	SKEW 1	0	SKEW control data.
19	SKEW 2	0	SKEW control data.
20	SKEW 2	0	SKEW control data.
22	AUDIO 1	0	Audio volume control data.
23	AUDIO 2	0	Audio volume control data.
24	AUDIO 3	0	Audio volume control data.
25	AUDIO 4	0	Audio volume control data.
26	VCC	I	+5V, back-up by a lithium battery.
27	RET 1	I	Key return signal.
28	RET 2	I	Key return signal.
29	GND	-	Ground terminal.
30	GND	-	Ground terminal.
31	AUDIO 5	0	Audio volume contorl data.
32	AUDIO 6	0	Audio volume control data.
33	MEMO	0	Turns the MEMO indicator on or off. High for on.
34	V/H	0	Turns the VERT or HORI indicators on. High for VERT.
35	SKEW 5	0	SKEW control data.
36	SKEW 6	0	SKEW control data.
37	POWER	0	Turns the POWER on or off. High for on.
38	-	-	Not used.
39	MEMORY LOCK	I	Detects the MEMORY LOCK switch is on or off. Low for on.
40	VIDEO INV	I	Detects the VIDEO INV switch is on or off. Low for on.
41	AFC DATA 1	I	Detects the AFC data is good or no-good. High for good.
42	AFC DATA 2	I	Detects the AFC data is good or no-good. High for good.
43	RESET	I	System reset input. High for reset.
44	TEST	I	Connect to +5V.
45	OSC	I	System clock 4.0 MHz.
46	OSC	I	System clock 4.0 MHz
47	GND	-	Ground terminal.
48	MUTE	0	Muting the audio output signal.
49	AUDIO TUNE 1	0	Selects the audio tune mode for VARIABLE, 6.5MHz or 6.6/6.65MHz. High for 6.5MHz.
50	DATA	0	PLL control data.

pin No.	signal	I/O	description
51	CLOCK	0	Clock for PLL control data.
52	SENSOR	0	Turns the SENSOR indicator on or off. High for on.
53	AUDIO TUNE 2	0	Selects the audio tune mode for VARIABLE, 6.5MHz or 6.6/6.65MHz. High for VARIABLE.
54	AUDIO TUNE 3	0	Selects the audio tune mode for VARIABLE, 6.5MHz or 6.6/6.65MHz. High for 6.6/6.65MHz.
55	LOAD	0	Strobe signal for PLL control data.
56	DISPSW 1	0	High to turn the lower position of the channel indicator on.
57	DISPSW 2	0	High to turn the upper position of the channel indicator on.
58	AUDIO BW 1	0	Selects the AUDIO BW for wide or narrow. High for wide.
59	AUDIO BW 2	0	Selects the AUDIO BW for wide or narrow. High for narrow.
60	DE-EMPHASIS	0	Select J17 or 75/50uS. High for J17.
61	POWER	I	Detects the unit is powered or not. Low for on.
62	VIDEO BW	0	Selects wide or narrow. High for wide.
63	PROG/SCAN	0	Turns the SCAN or PROG CH indicators on. High for PROG CH.
64	-	-	Not used.

CHANNELS/FREQUENCIES CORRESPONDING TABLE

The receiver has been factory-programmed with the following channels and frequencies. Use this table for your operating convenience.

Memorized Frequency Convertion Table

Channel Number	LNB Output Frequency (MHz)	Channel Number	LNB Output Frequency (MHz)	Channel Number	LNB Output Frequency (MHz)	Channel Number	LNB Output Frequency (MHz)
1	955	21	1,155	41	1,355	61	1,555
2	965	22	1,165	42	1,365	62	1,565
3	975	23	1,175	43	1,375	63	1,575
4	985	24	1,185	44	1,385	64	1,585
5	995	25	1,195	45	1,395	65	1,595
6	1,005	26	1,205	46	1,405	66	1,605
7	1,015	27	1,215	47	1,415	67	1,615
8	1,025	28	1,225	48	1,425	68	1,625
9	1,035	29	1,235	49	1,435	69	1,635
10	1,045	30	1,245	50	1,445	70	1,645
11	1,055	31	1,255	51	1,455	71	1,655
12	1,065	32	1,265	52	1,465	72	1,665
13	1,075	33	1,275	53	1,475	73	1,675
14	1,085	34	1,285	54	1,485	74	1,685
15	1,095	35	1,295	55	1,495	75	1,695
16	1,105	36	1,305	56	1,505	76	1,705
17	1,115	37	1,315	57	1,515	77	1,715
18	1,125	38	1,325	58	1,525	78	1,725
19	1,135	39	1,335	59	1,535	79	1,735
20	1,145	40	1,345	60	1,545	80	1,745

Note

1) The receiving frequency from the satellite can be converted into LNB Output Frequency by subtracting the LNB's Local Oscillator Frequency(L.O.Freq.).

For ECS, INTELSAT or SES reception, an LNB with L.O.Freq. at 10,000 MHz will be normally used. So if you want to receive a program transmitted 11,674 MHz, the corresponding LNB output frequency is 1,674 MHz; that is channel 73 in this receiver.

For DBS reception, an LNB with L.O.Freq. at 10,750 HMz will be normally used. So if you want to receive a program transmitted at 11,747 MHz, the corresponding LNB output frequency is 997 MHz; that is channel 5 in this receiver.

For reception of Telecom 1, a LNB with L.O.Freq. at 11,300 MHz or 11,475HMz will be used. So if you want to receive a program transmitted at 12,732 MHz;

* In case of 11,300 MHz L.O.Freq., the corresponding LNB output frequency is 1,432 MHz; that is channel 49 in this receiver.

** In case of 11,475 MHz L.O.Freq., the corresponding LNB output Frequency is 1,257 MHz; that is channel 31 in this receiver.

2) The operation of the VIDEO FINE TUNE buttons will vary these frequencies.

Only the following frequencies of the actual stations are known as of January 1987.

ECS-F-1 (13° East)

Service (Name)	Polarization	Spotbeam	Frequency (MHz)	Deviation (MHz)	Video Bandwidth (MHz)/ (Wide or Narrow)	Audio Bandwidth (kHz)/ (Wide or Narrow)	Subcarrier (MHz)	Pre-emphasis
RAI UNO	H (Horiz)	West	11,005	25	36/Wide	400/Wide	6.60	50 μS
3 SAT	H (Horiz)	West	11,170	25	36/Wide	280/Narrow	6.65	50 μS
TV 5	H (Horiz)	West	11,471	25	36/Wide	900/Wide	6.65	J-17
WORLDNET	H (Horiz)	West	11,508	25	36/Wide	400/Wide	6.65	J-17
SKY CHANNEL	H (Horiz)	West	11,650	16	27/Narrow	280/Narrow	6.60	50 μS
TELE CLUB	V (Vert)	West	10,986	25	36/Wide	280/Narrow	6.50	75 μS
RTL PLUS	V (Vert)	East	11,091	25	36/Wide	280/Narrow	6.65	50 μS
FILMNET	V (Vert)	West	11,140	25	36/Wide	280/Narrow	6.60	J-17
SAT 1	V (Vert)	West	11,507	25	36/Wide	280/Narrow	6.65	50 μS
SUPER CHANNEL	V (Vert)	West	11,674	25	36/Wide	280/Narrow	6.65	50 μS

INTELSAT (27.5° West)

Service (Name)	Polarization	Spotbeam	Frequency (MHz)	Deviation (MHz)	Video Bandwidth (MHz)/ (Wide or Narrow)	Audio Bandwidth (kHz)/ (Wide or Narrow)	Subcarrier (MHz)	Pre-emphasis
PREMIERE/ CHILDREN'S CHANNEL	H (Horiz)	West	11,015	20	30/Narrow	280/Narrow	6.60	50 μS
SCREEN SPORT/ LIFE STYLE	H (Horiz)	West	11,135	20	30/Narrow	280/Narrow	6.65	50 μS
CNN	V (Vert)	East	11,155	20	30/Narrow	280/Narrow	6.60	50 μS

INTELSAT (60° East)

Service (Name)	Polarization	Spotbeam	Frequency (MHz)	Deviation (MHz)	Video Bandwidth (MHz)/ (Wide or Narrow)	Audio Bandwidth (kHz)/ (Wide or Narrow)	Subcarrier (MHz)	Pre-emphasis
WDR III	H (Horiz)	West	11,010	25	36/Wide	280/Narrow	6.65	50 μS
MUSIC BOX	H (Horiz)	West	11,135	20	31/Wide	280/Narrow	6.65	50 μS
BR 3	H (Horiz)	West	11,175	20	31/Wide	280/Narrow	6.60	50 μS
EINS PLUS	H (Horiz)	West	11,549	25	36/Wide	280/Narrow	6.65	50 μS

SPECIFICATIONS

RF PERFORMANCE

Input Frequency	950 to 1750 MHz (10 MHz step)
Input Level Range	-60 to -20 dBm (IM3; Less than 49 dB)
Input VSWR	Less than 3
Input Impedance	50Ω (N-type Female)
Image Rejection	More than 31 dB
Intermediate Frequency	479.5 MHz
IF Bandwidth	36 MHz or 30/27 MHz
Threshold Level	Less than 8 dB
AGC Range	40 dB
AFC Hold Range	±5 MHz Min.

VIDEO PERFORMANCE

Demodulator	Phase Lock Loop Detector	
Video System	PAL-B/ PAL-G	PAL-I/ SECAM
Bandwidth	50 Hz to 5 MHz	50 Hz to 5.5 MHz
Output Level Range	0.5 to 1.5 Vp-p (Continuous)	
Impedance	75Ω (BNC, Female)	
S/N (CCIR-weighted at 16dB C/N, min. 12.5MHz peak deviation)	53 dB	
De-emphasis	CCIR Rec. 405, 625 Lines	
Clamping	40 dB	
Differential Gain	5% (APL 10 to 90%)	
Differential Phase	5° (APL 10 to 90%)	
Chrominance-Luminance Gain	Less than ±1 dB	
Chrominance-Luminance Delay	Within ±50 ns	

AUDIO PERFORMANCE

Subcarrier Frequency	5 to 8 MHz (10 kHz step)
Bandwidth	50 Hz to 15 kHz
Output Level	Max. +10 dBm (Continuous)
Impedance	600Ω (RCA-type)
Output Terminals	Series Terminal Blocks
S/N (CCIR-weighted at 16dB C/N min. 75kHz peak deviation)	50 dB
De-emphasis and Deviation	50, 75 μS/J17 300 kHz/1 MHz
Total Harmonic Distortion	1%

COMPOSITE BASEBAND

Bandwidth	50 Hz to 10 MHz
Impedance	75Ω (BNC, Female)
De-emphasis	CCIR Rec. 405, 625 Lines
Output Level	1 Vp-p

POWER REQUIREMENTS

Power Supply Voltage	220/240C AC 50 Hz Switchable
Power Consumption	49W

OTHERS

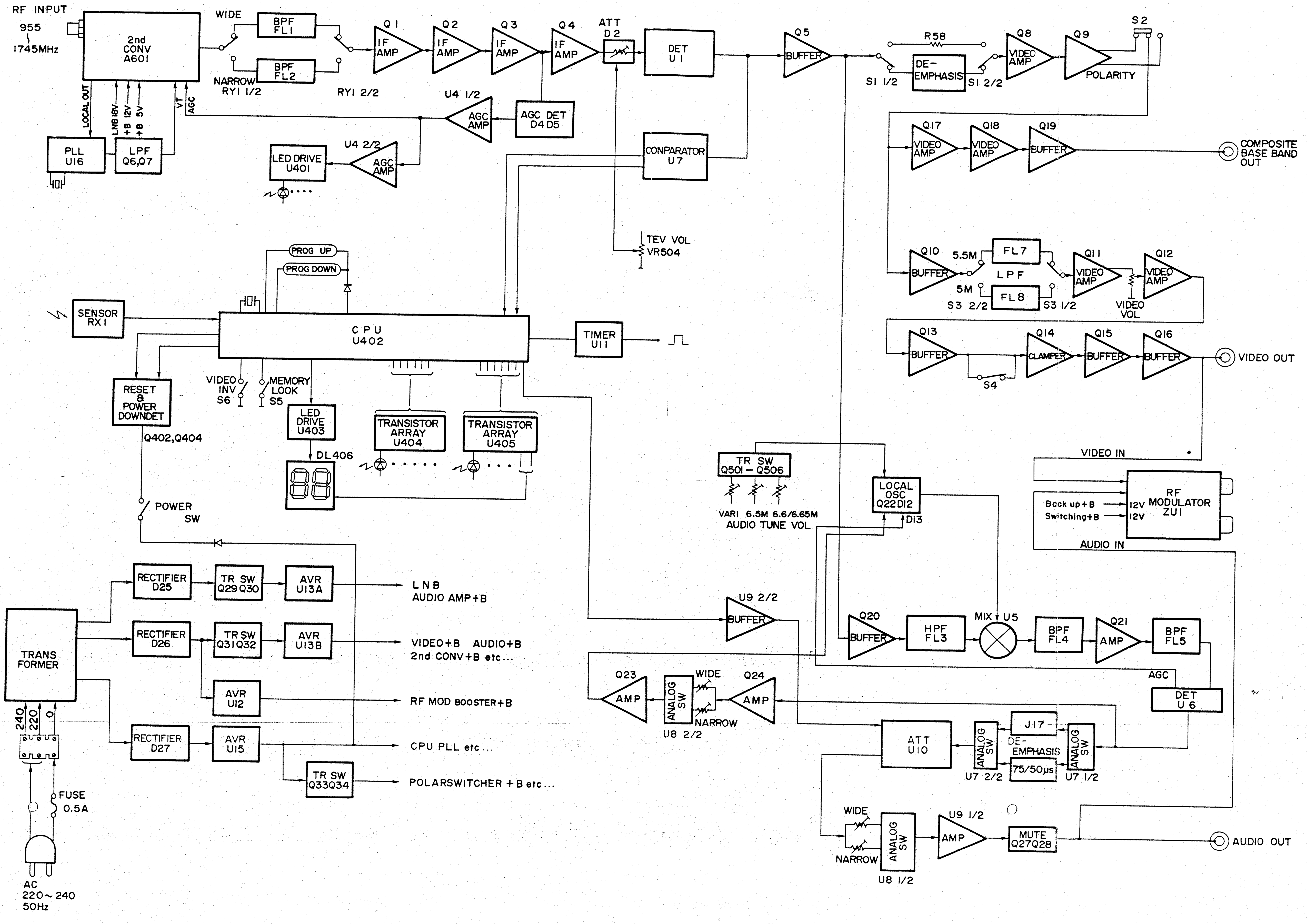
Output Voltage	18V DC 5W max. (through RF INPUT connector)
AGC Voltage	12V 0.12W AGC (0 — 6V)
Polarity Control Voltage	5V 2W PULS 0.45 — 2 mS CONT 5V
Temperature Range	-10 to +50°C
Dimensions H x W x D	80 x 340 x 300 mm
Weight	Approx. 4.7 kg

Accessories

Infrared Remote Control Unit

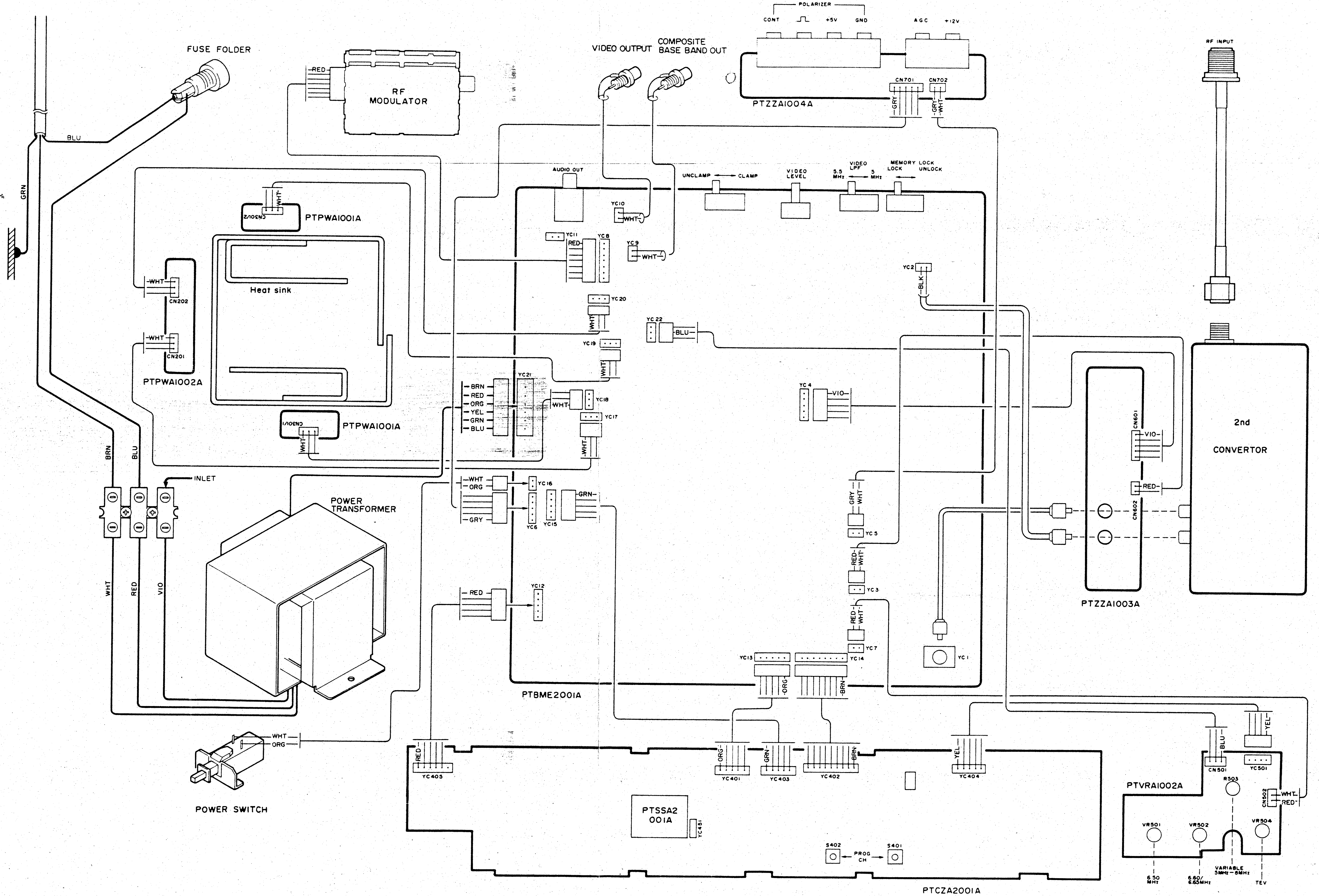
Two AA size batteries

BLOCK DIAGRAM



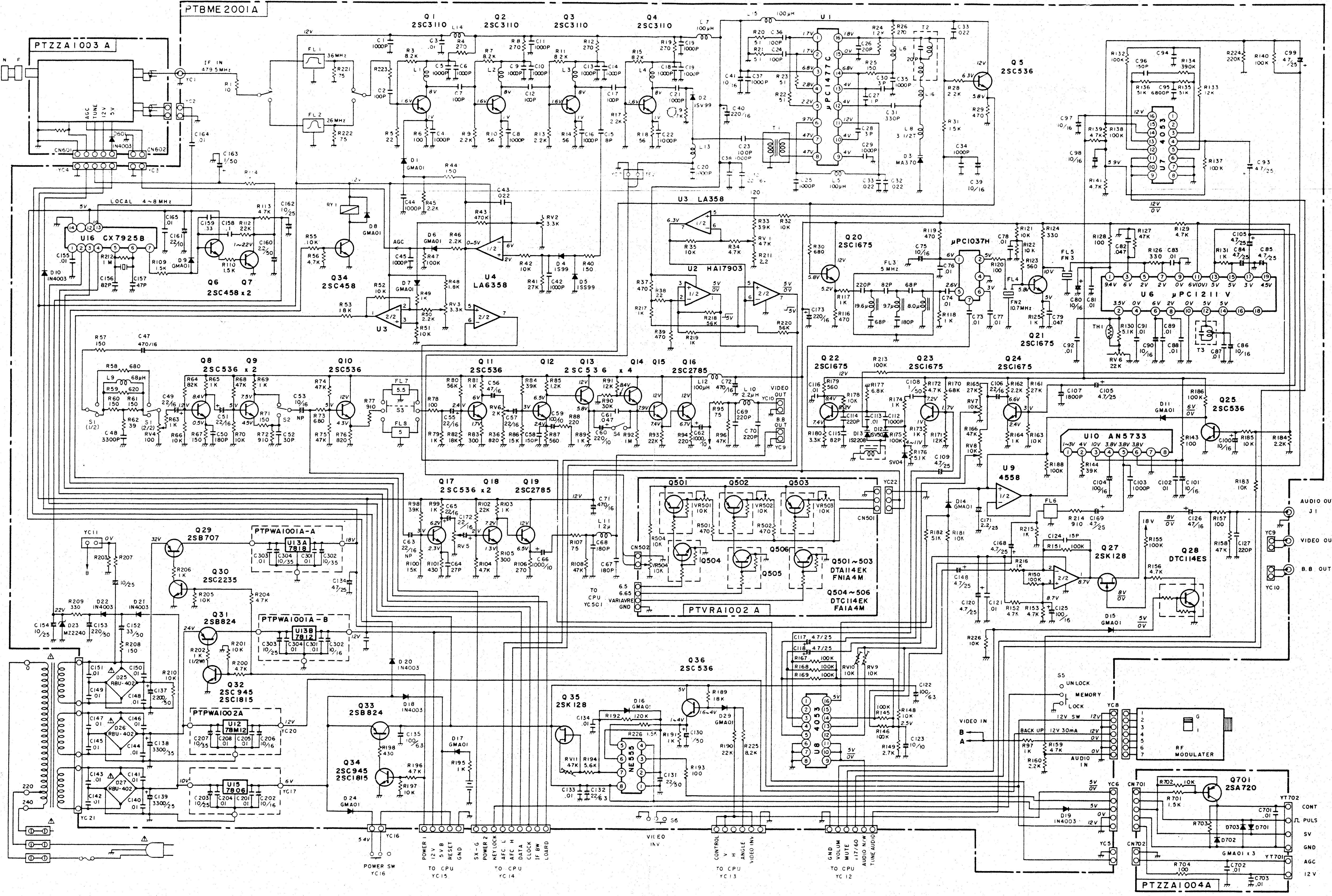
RF INPUT
955 ~ 1745MHz
2nd CONV A601
WIDE
BPF FL1
BPF FL2
NARROW RY1 1/2
RY1 2/2
Q1 IF AMP
Q2 IF AMP
Q3 IF AMP
Q4 IF AMP
ATT D2
DET U1
Q5 BUFFER
R58
S1 1/2
DE-EMPHASIS
S1 2/2
Q8 VIDEO AMP
Q9 POLARITY
S2
LOCAL OUT
LNB 18V
+B 12V
+B 5V
VT
AGC
PLL U16
LPF Q6,Q7
U4 1/2
AGC AMP
AGC DET D4 D5
U4 2/2
AGC AMP
LED DRIVE U401
CONPARATOR U7
TEV VOL VR504
Q17 VIDEO AMP
Q18 VIDEO AMP
Q19 BUFFER
COMPOSITE BASE BAND OUT
Q10 BUFFER
5.5M
FL7
LPF
5M
FL8
S3 2/2
S3 1/2
Q11 VIDEO AMP
Q12 VIDEO AMP
VIDEO VOL
Q13 BUFFER
Q14 CLAMPER
Q15 BUFFER
Q16 BUFFER
S4
VIDEO OUT
PROG UP
PROG DOWN
SENSOR RX1
CPU U402
TIMER U11
RESET & POWER DOWNDET
Q402,Q404
VIDEO INV S6
MEMORY LOOK S5
LED DRIVE U403
DL406
TRANSISTOR ARRAY U404
TRANSISTOR ARRAY U405
POWER SW
TR SW Q501 – Q506
VARI 6.5M 6.6/6.65M
AUDIO TUNE VOL
LOCAL OSC Q22 D12
D13
VIDEO IN
RF MODULATOR ZU1
Back up+B 12V
Switching+B 12V
AUDIO IN
RECTIFIER D25
TR SW Q29 Q30
AVR U13A
LNB
AUDIO AMP+B
TRANS FORMER
RECTIFIER D26
TR SW Q31 Q32
AVR U13B
VIDEO+B AUDIO+B
2nd CONV+B etc...
AVR U12
RF MOD BOOSTER+B
RECTIFIER D27
AVR U15
CPU PLL etc...
TR SW Q33 Q34
POLARSWITCHER +B etc...
240
220
0
FUSE 0.5A
AC 220~240 50Hz
U9 2/2 BUFFER
Q20 BUFFER
HPF FL3
MIX U5
BPF FL4
Q21 AMP
BPF FL5
AGC
DET U6
Q23 AMP
ANALOG SW
WIDE
NARROW
U8 2/2
Q24 AMP
ATT U10
ANALOG SW
J17
DE-EMPHASIS
75/50μs
ANALOG SW
U7 2/2
U7 1/2
WIDE
NARROW
ANALOG SW
U8 1/2
U9 1/2 AMP
MUTE Q27Q28
AUDIO OUT

WIRNG DIAGRAM


FUSE FOLDER
BLU
GRN
RED
RF MODULATOR
VIDEO OUTPUT
COMPOSITE BASE BAND OUT
POLARIZER
CONT
+5V
GND
AGC
+12V
CN701
CN702
GRY
GRY WHT
PTZZA1004A
RF INPUT
AUDIO OUT
UNCLAMP ← → CLAMP
VIDEO LEVEL
VIDEO LPF
5.5 MHz ← → 5 MHz
MEMORY LOCK
LOCK ← → UNLOCK
YC10
WHT
YC11
YC8
RED
YC9
WHT
YC2
BLK
PTPWA1001A
CN302
Heat sink
CN202
CN201
WHT
PTPWA1002A
YC20
WHT
YC22
BLU
YC19
WHT
YC21
BRN
RED
ORG
YEL
GRN
BLU
YC18
WHT
YC17
WHT
CN301
PTPWA1001A
YC4
VIO
CN601
VIO
RED
CN602
2nd CONVERTOR
PTZZA1003A
BRN
BLU
INLET
POWER TRANSFORMER
WHT
RED
VIO
WHT
ORG
GRY
YC16
YC6
YC15
GRN
GRY WHT
YC5
RED WHT
YC3
RED WHT
YC7
RED
YC12
YC13
YC14
ORG
BRN
YC1
PTBME2001A
WHT
ORG
POWER SWITCH
RED
YC403
ORG
YC401
GRN
YC403
BRN
YC402
YEL
YC404
PTSSA2 001A
YC451
S402
PROG CH
S401
PTCZA2001A
BLU
YEL
CN501
YC501
R503
PTVRA1002A
CN502
WHT
RED
VR501
VR502
VR504
6.50 MHz
6.60/ 6.65MHz
VARIABLE 5MHz — 8MHz
TEV

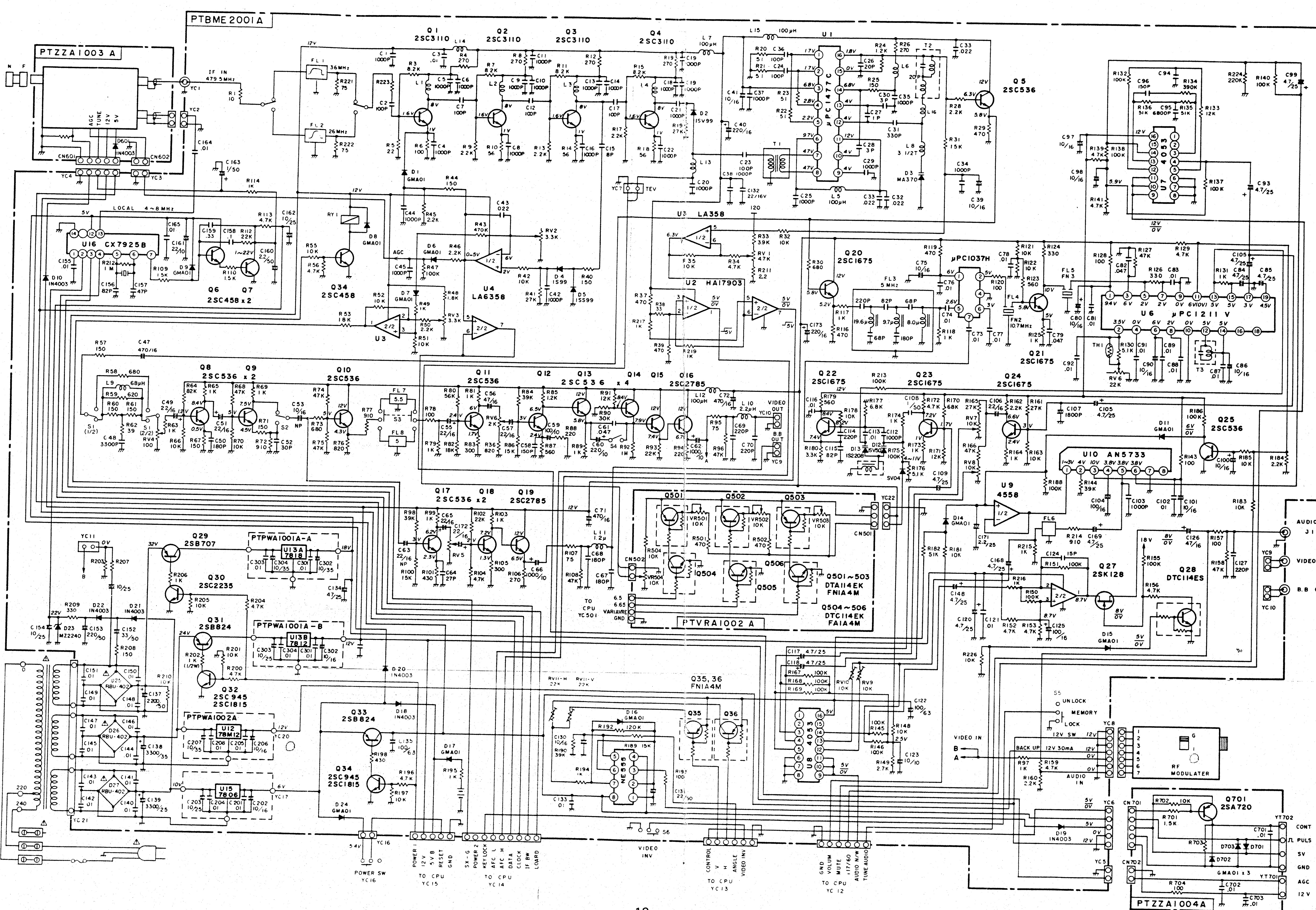
SCHEMATIC DIAGRAM (1)

Applicable Serial Nos. 6395000 - 6432999


PTBME2001A
PTZZA1003A
IF IN 479.5MHz
LOCAL 4~8MHz
Q1 2SC3110
Q2 2SC3110
Q3 2SC3110
Q4 2SC3110
Q5 2SC536
U1 μPC1477C
U3 LA358
U2 HA17903
U4 LA6358
U16 CX7925B
Q6 Q7 2SC458 x 2
Q34 2SC458
Q20 2SC1675
μPC1037H
Q21 2SC1675
U6 μPC1211V
U7 4053
Q8 Q9 2SC536 x 2
Q10 2SC536
Q11 Q12 Q13 Q14 Q15 2SC536 x 4
Q16 2SC2785
Q22 2SC1675
Q23 2SC1675
Q24 2SC1675
Q25 2SC536
U10 AN5733
U9 4558
Q17 Q18 2SC536 x 2
Q19 2SC2785
Q501~503 DTA114EK FNA4M
Q504~506 DTC114EK FAI4M
PTVRA1002A
Q27 2SK128
Q28 DTC114ES
Q29 2SB707
Q30 2SC2235
Q31 2SB824
Q32 2SC945 2SC1815
PTPWA1001A-A
U13A 7818
PTPWA1001A-B
U13B 7812
PTPWA1002A
U12 78M12
U15 7806
Q33 2SB824
Q34 2SC945 2SC1815
Q35 2SK128
Q36 2SC536
NE555
U8 4053
Q701 2SA720
PTZZA1004A
RF MODULATER
AUDIO OUT J1
VIDEO OUT
B.B OUT
VIDEO IN
AUDIO IN
UNLOCK
MEMORY
LOCK
POWER SW YC16
TO CPU YC15
TO CPU YC14
TO CPU YC13
TO CPU YC12
TO CPU YC501
POWER 1
12V
5V B
RESET
GND
SX-G
POWER 2
KEYLOCK
AFC L
AFC H
DATA
CLOCK
IF BW
LOARD
CONTROL
V
H
ANGLE
VIDEO INV
VOLUM
MUTE
±17/60
AUDIO N/W
TUNE AUDIO
CONT
PULS
SV
AGC
12V
220
240

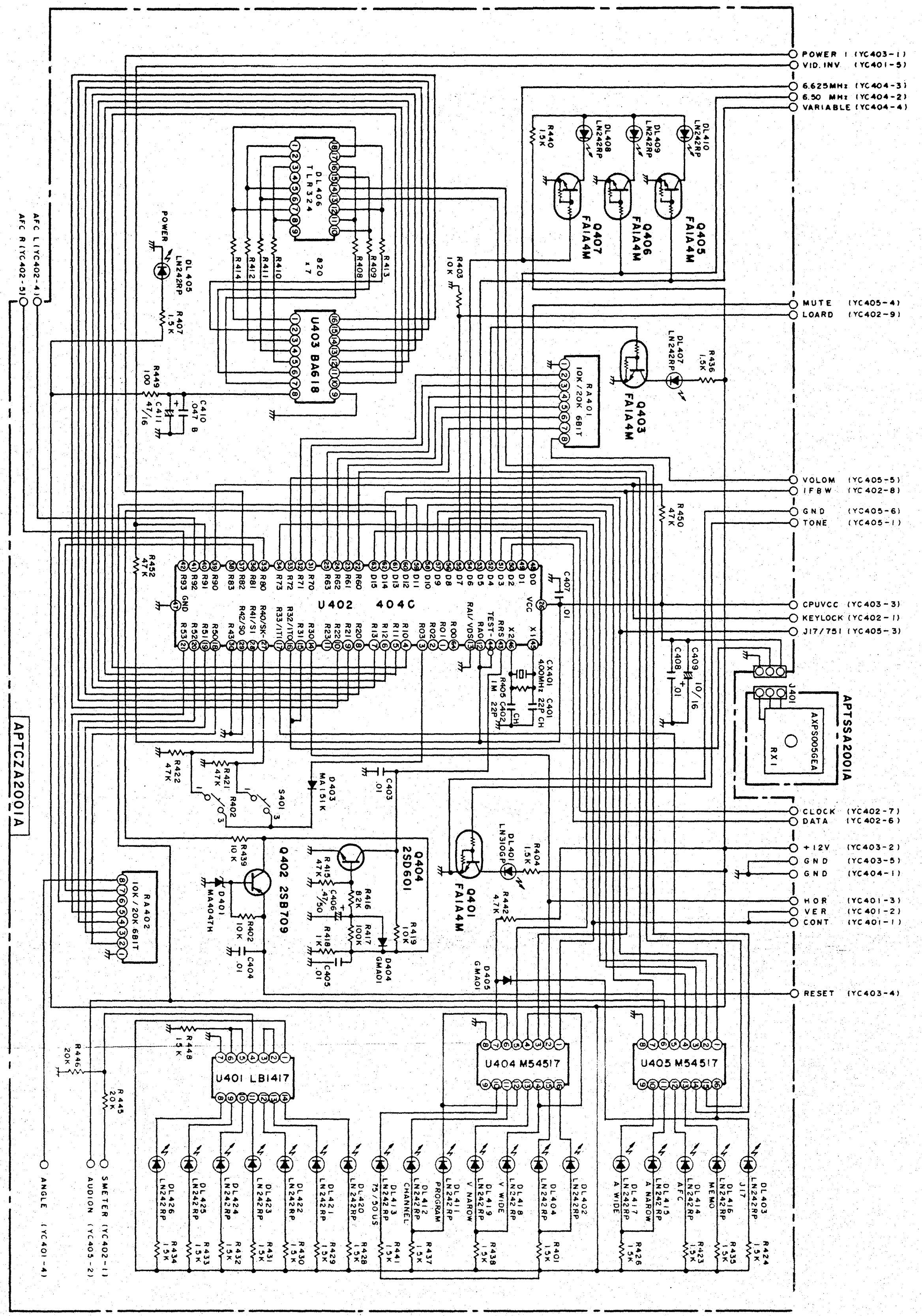
SCHEMATIC DIAGRAM (2)

Applicable Serial Nos. from 7076000


PTBME2001A
PTZZA1003A
IF IN 479.5MHz
FL1 36MHz
FL2 26MHz
Q1 2SC3110
Q2 2SC3110
Q3 2SC3110
Q4 2SC3110
U1 μPC1477C
Q5 2SC536
U7 4053
U16 CX7925B
Q6 Q7 2SC458 x 2
Q34 2SC458
U4 LA6358
U3 LA358
U2 HA17903
Q20 2SC1675
μPC1037H
FL3 5MHz
FL5 FN3
FL4
FN2 10.7MHz
Q21 2SC1675
U6 μPC1211V
LOCAL 4~8MHz
Q8 Q9 2SC536 x 2
Q10 2SC536
Q11 2SC536
Q12 Q13 2SC536 x 4
Q14 Q15 Q16 2SC2785
Q22 2SC1675
Q23 2SC1675
Q24 2SC1675
Q25 2SC536
U10 AN5733
U9 4558
Q17 Q18 2SC536 x2
Q19 2SC2785
Q29 2SB707
PTPWA1001A-A
U13A 7818
Q30 2SC2235
Q31 2SB824
PTPWA1001A-B
U13B 7812
Q32 2SC945 2SC1815
PTPWA1002A
U12 78M12
U15 7806
Q33 2SB824
Q34 2SC945 2SC1815
Q501 Q502 Q503
Q504 Q505 Q506
Q501~503 DTA114EK FNIA4M
Q504~506 DTC114EK FAIA4M
PTVRA1002A
CN501
CN502
YC22
TO CPU YC501
Q35, 36 FNIA4M
NE555
U8 4053
Q27 2SK128
Q28 DTC114ES
AUDIO OUT J1
VIDEO OUT
B.B OUT
YC9
YC10
S5 UNLOCK MEMORY LOCK
YC8
VIDEO IN
B
A
AUDIO IN
RF MODULATER
Q701 2SA720
PTZZA1004A
CONT
PULS
SV
GND
AGC
12V
YT702
YT701
CN701
CN702
D701 D702 D703
GMA01 x 3
POWER SW YC16
POWER I 12V 5VB RESET GND
TO CPU YC15
SX-G POWER 2 KEYLOCK AFC L AFC H DATA CLOCK IF BW LOARD
TO CPU YC14
VIDEO INV
CONTROL V H ANGLE VIDEO INV
TO CPU YC13
GND VOLUM MUTE 17/60 AUDIO N/W TUNE AUDIO
TO CPU YC12
220
240
YC21
YC11
YC17
YC6
YC5
RBU-402
D20 IN4003
D18 IN4003
D24 GMA01
D17 GMA01

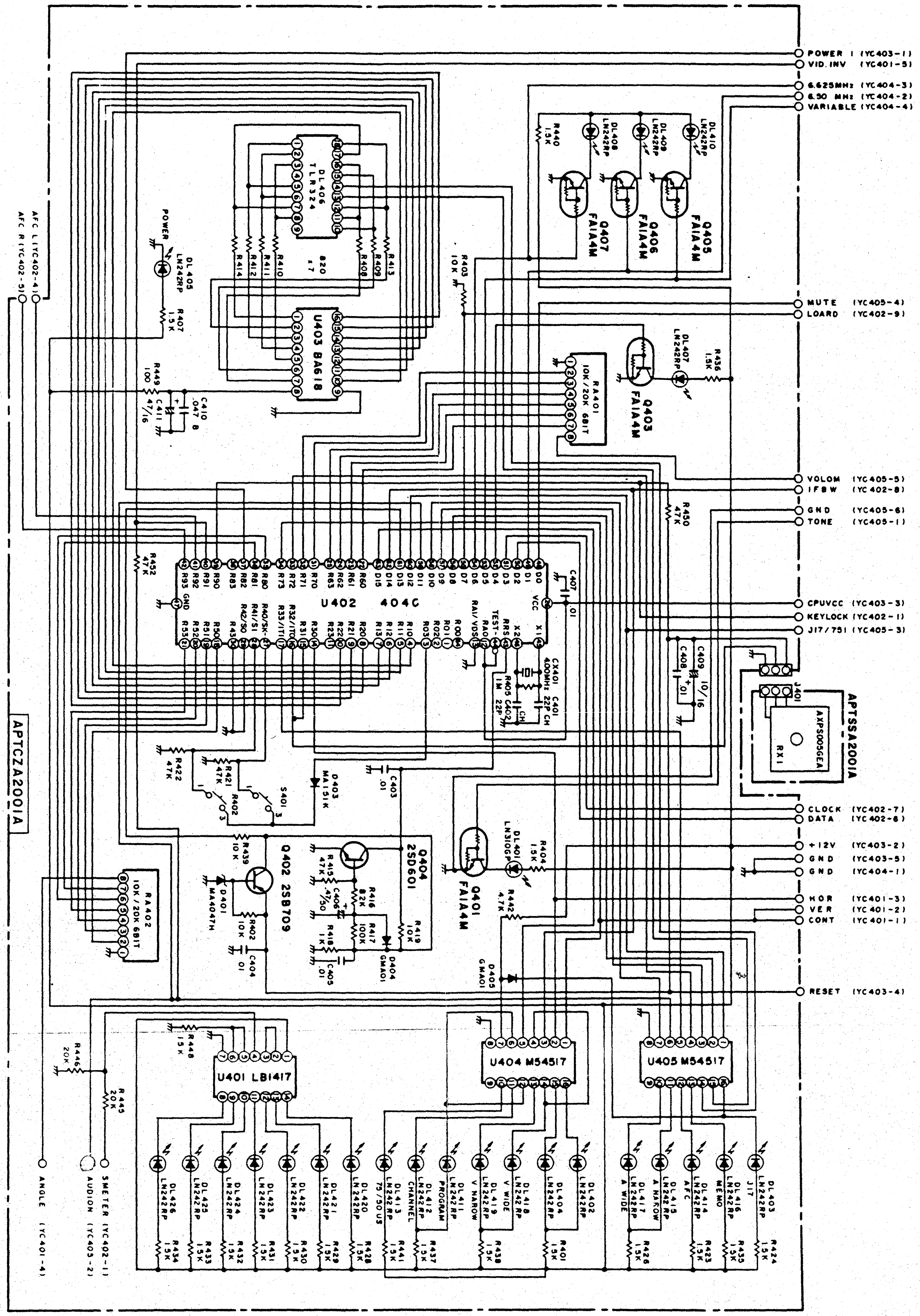
SCHEMATIC DIAGRAM (3)

Applicable Serial Nos. 6395000 - 6432999


POWER I (YC403-1)
VID. INV (YC401-5)
6.625MHz (YC404-3)
6.50 MHz (YC404-2)
VARIABLE (YC404-4)
MUTE (YC405-4)
LOARD (YC402-9)
VOLOM (YC405-5)
IFBW (YC402-8)
GND (YC405-6)
TONE (YC405-1)
CPUVCC (YC403-3)
KEYLOCK (YC402-1)
J17/751 (YC405-3)
CLOCK (YC402-7)
DATA (YC402-6)
+12V (YC403-2)
GND (YC403-5)
GND (YC404-1)
HOR (YC401-3)
VER (YC401-2)
CONT (YC401-1)
RESET (YC403-4)
U402 404C
U403 BA618
U401 LB1417
U404 M54517
U405 M54517
Q405 FA1A4M
Q406 FA1A4M
Q407 FA1A4M
Q403 FA1A4M
Q401 FA1A4M
Q402 2SB709
Q404 2SD601
RA401 10K/20K 6BIT
RA402 10K/20K 6BIT
J401
AXPS005GEA
RX1
APTSSA2001A
APTCZA2001A
AFC L (YC402-4)
AFC R (YC402-5)
ANGLE (YC401-4)
AUDION (YC405-2)
SMETER (YC402-1)

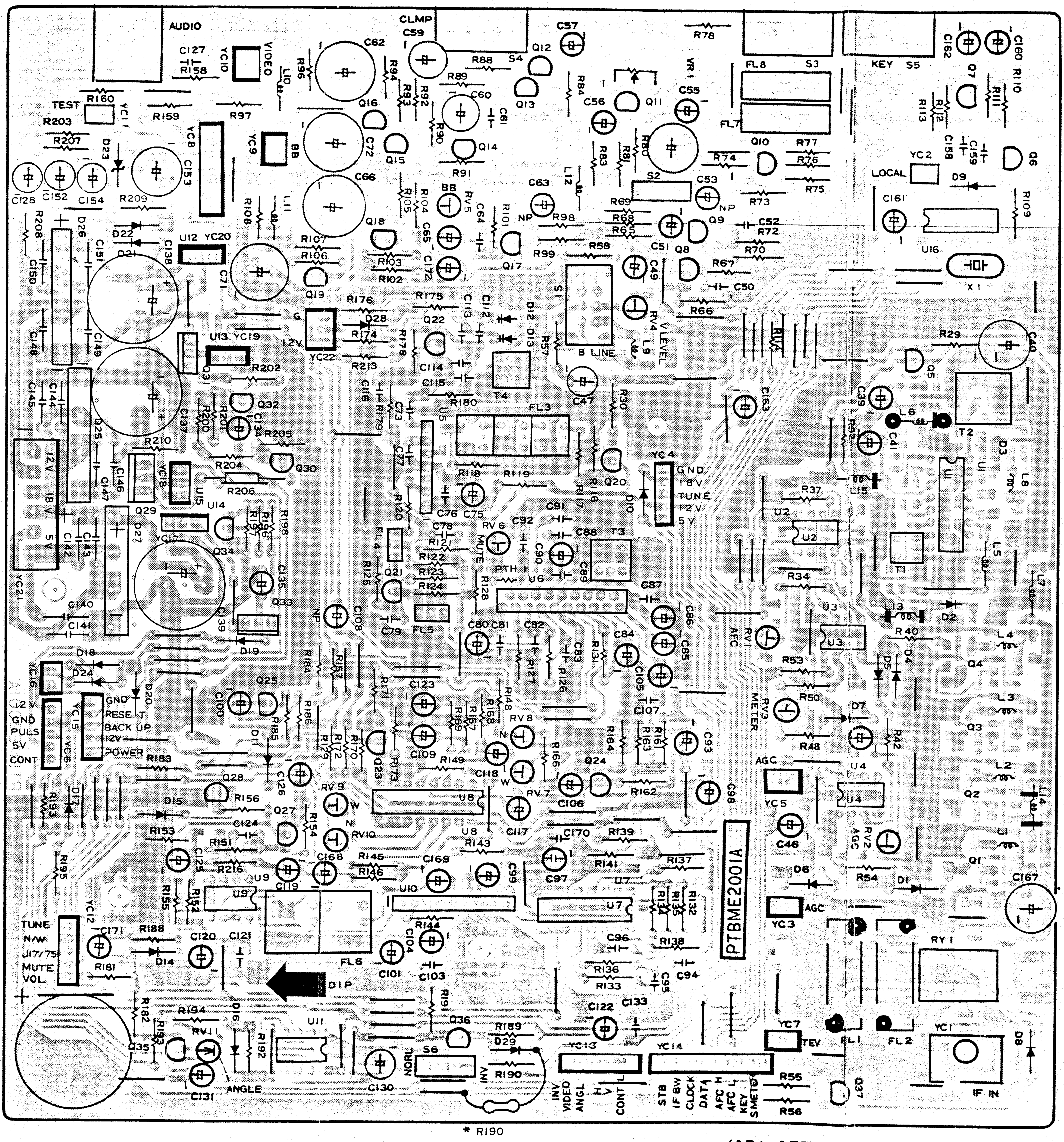
SCHEMATIC DIAGRAM (4)

Applicable Serial Nos. from 7076000


POWER I (YC403-1)
VID. INV (YC401-5)
6.625MHz (YC404-3)
6.50 MHz (YC404-2)
VARIABLE (YC404-4)
MUTE (YC405-4)
LOARD (YC402-9)
VOLOM (YC405-5)
IFBW (YC402-8)
GND (YC405-6)
TONE (YC405-1)
CPUVCC (YC403-3)
KEYLOCK (YC402-1)
J17/751 (YC405-3)
CLOCK (YC402-7)
DATA (YC402-6)
+12V (YC403-2)
GND (YC403-5)
GND (YC404-1)
HOR (YC401-3)
VER (YC401-2)
CONT (YC401-1)
RESET (YC403-4)
U402 404C
U403 BA618
U401 LB1417
U404 M54517
U405 M54517
Q405 FA1A4M
Q406 FA1A4M
Q407 FA1A4M
Q403 FA1A4M
Q401 FA1A4M
Q402 2SB709
Q404 2SD601
RA401 10K/20K 6BIT
RA402 10K/20K 6BIT
J401
AXPS005GEA
RX1
APTSSA2001A
APTCZA2001A
AFC L (YC402-4)
AFC R (YC402-5)
ANGLE (YC401-4)
AUDION (YC405-2)
SMETER (YC402-1)

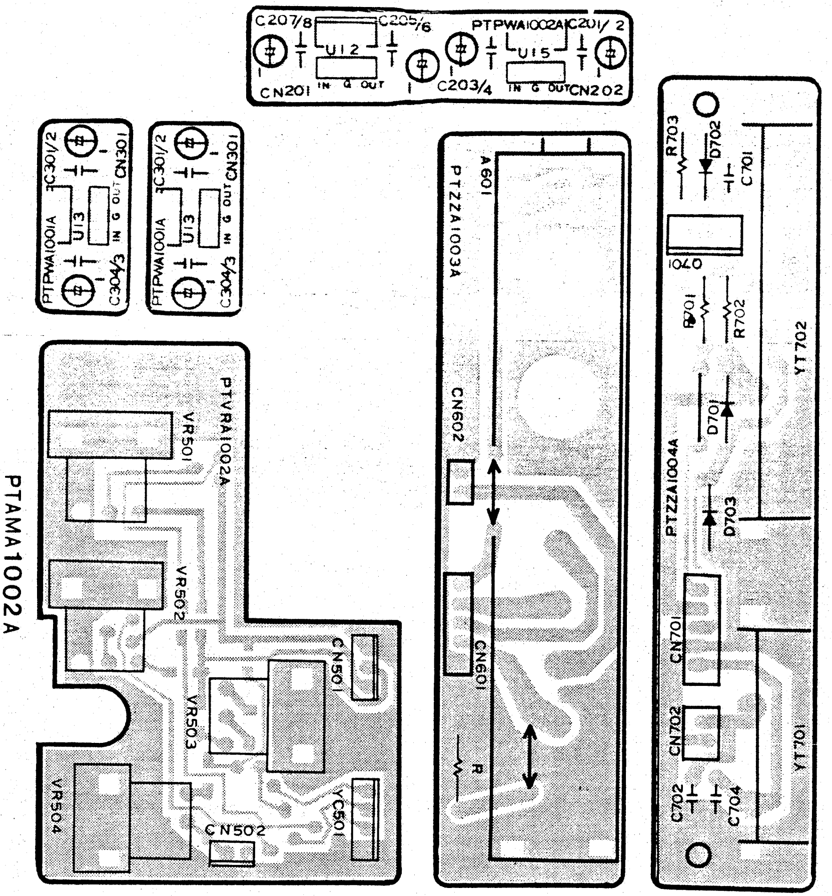
PC BOARD DIAGRAM (1) Applicable Serial Nos. 6395000 - 6432999

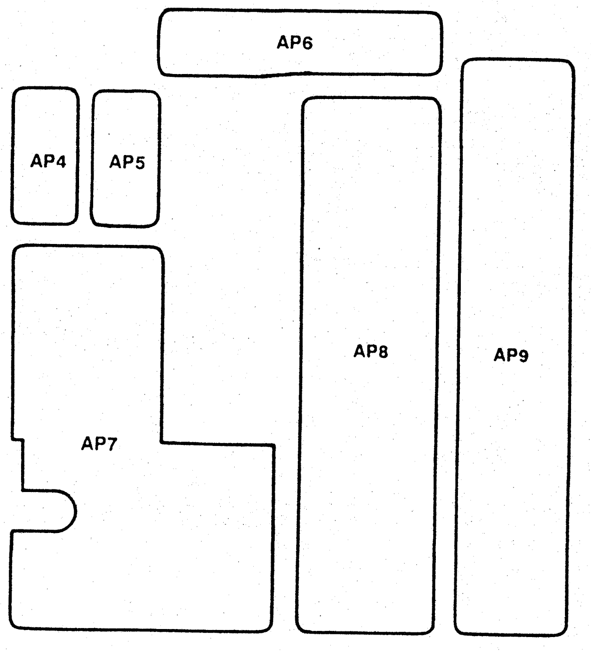
Component side


AUDIO
VIDEO
CLMP
TEST
LOCAL
KEY
S3
S4
S5
FL8
FL7
X1
B LINE
V.LEVEL
MUTE
PTH
AFC
METER
AGC
GND
18V
TUNE
12V
5V
GND
RESET
BACK UP
12V
POWER
12V
GND
PULS
5V
CONT
TUNE
N.W.
J17/75
MUTE
VOL.
ANGLE
DIP
PTBME2001A
RY1
TEV
FL1
FL2
IF IN
INV
VIDEO
ANGL
H
V
CONT
STB
IF BW
CLOCK
DATA
AFC H
AFC L
KEY
S.METER
* R190

(AP1, APTBME2001AH) Main PC board

R190 marked with * is employed for the unit numbered from Serial No. 6395000 to 6432999.

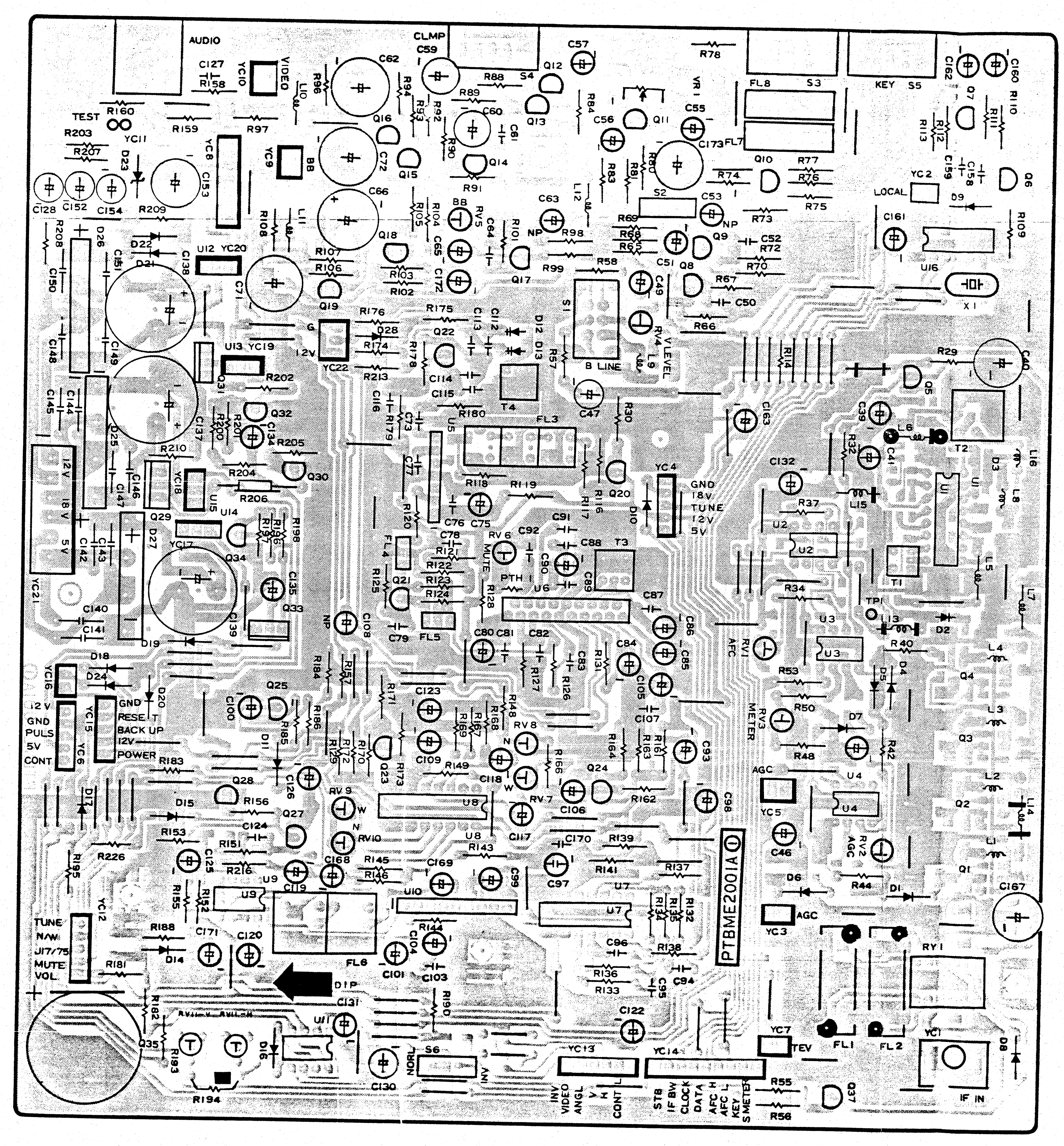

PTPWA1002A
C207/8
C205/6
C203/4
C201/2
U12
U15
CN201
CN202
PTPWA1001A
PTPWA1001A
U13
C301/2
C304/3
CN301
PTVRA1002A
VR501
VR502
VR503
VR504
CN501
CN502
YC501
PTAMA1002A
PTZZA1003A
A601
CN602
CN601
PTZZA1004A
R703
D702
C701
R701
R702
D701
D703
CN701
CN702
C702
C704
YT701
YT702


AP6
AP4
AP5
AP7
AP8
AP9

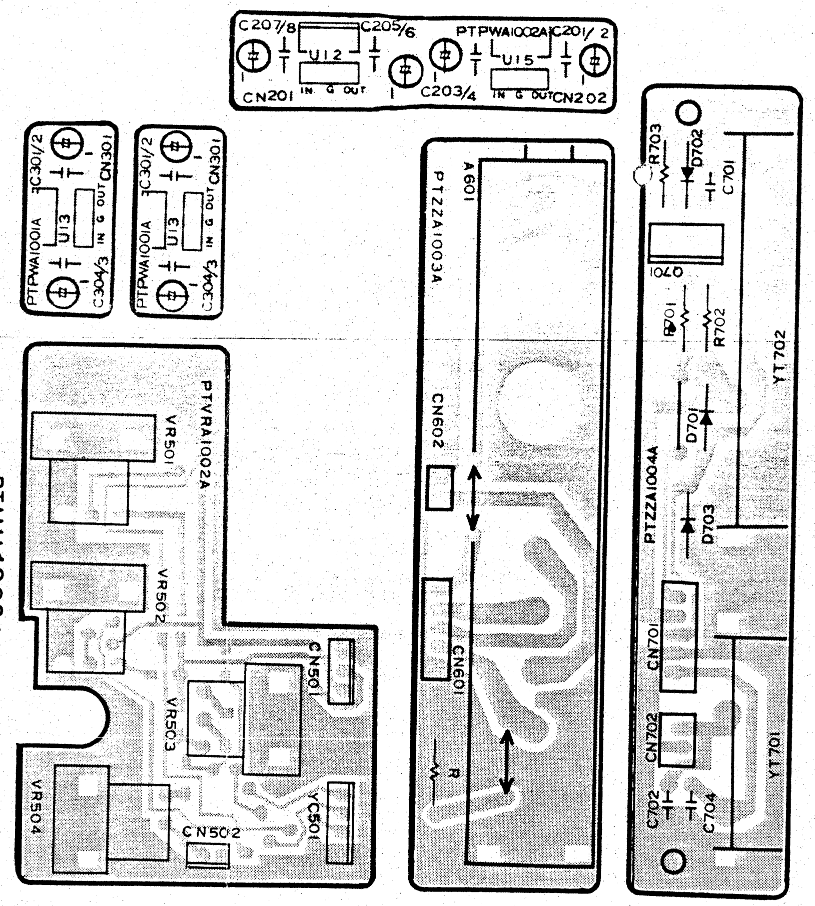
(AP4, APTPWA1001AH) 12V power supply PC board
(AP5, APTPWA1001BH) 18V power supply PC board
(AP6, APTPWA1002AH) 6V, 12V power supply PC board
(AP7, APTVRA1002AH) Volume PC board
(AP8, QPTEEA1003AH) 2nd CW PC board
(AP9, APTZZA1004AH) Terminal PC board

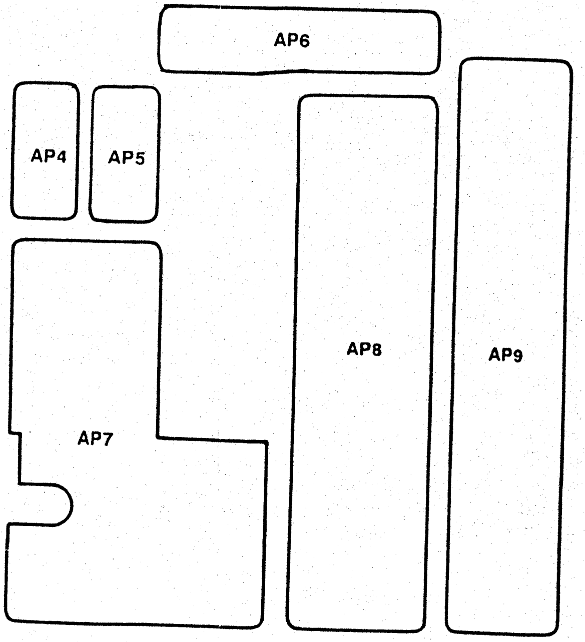
PC BOARD DIAGRAM (2) Applicable Serial Nos. from 7076000

Component side


AUDIO
VIDEO
CLMP
TEST
KEY
LOCAL
B LINE
V LEVEL
GND
18V
TUNE
12V
5V
MUTE
AFC
METER
AGC
GND
RESET
BACK UP
12V
POWER
12V
GND
PULS
5V
CONT
TUNE
N/W
J17/75
MUTE
VOL
DIP
NOR
ANT
INV
VIDEO
ANGL
CONT
STB
IF BW
CLOCK
DATA
AFC
KEY
S METER
IF IN
TEV
FL1
FL2
RY1
PTBME2001A0

(AP1, APTBME2001AH) Main PC board


PTPWA1002A
CN201
CN202
U12
U15
PTPWA1001A
U13
CN301
PTAMA1002A
PTVRA1002A
VR501
VR502
VR503
VR504
CN501
CN502
YC501
PTZZA1003A
A601
CN601
CN602
PTZZA1004A
CN701
CN702
YT701
YT702
D701
D702
D703
R701
R702
R703
C701
C702
C704

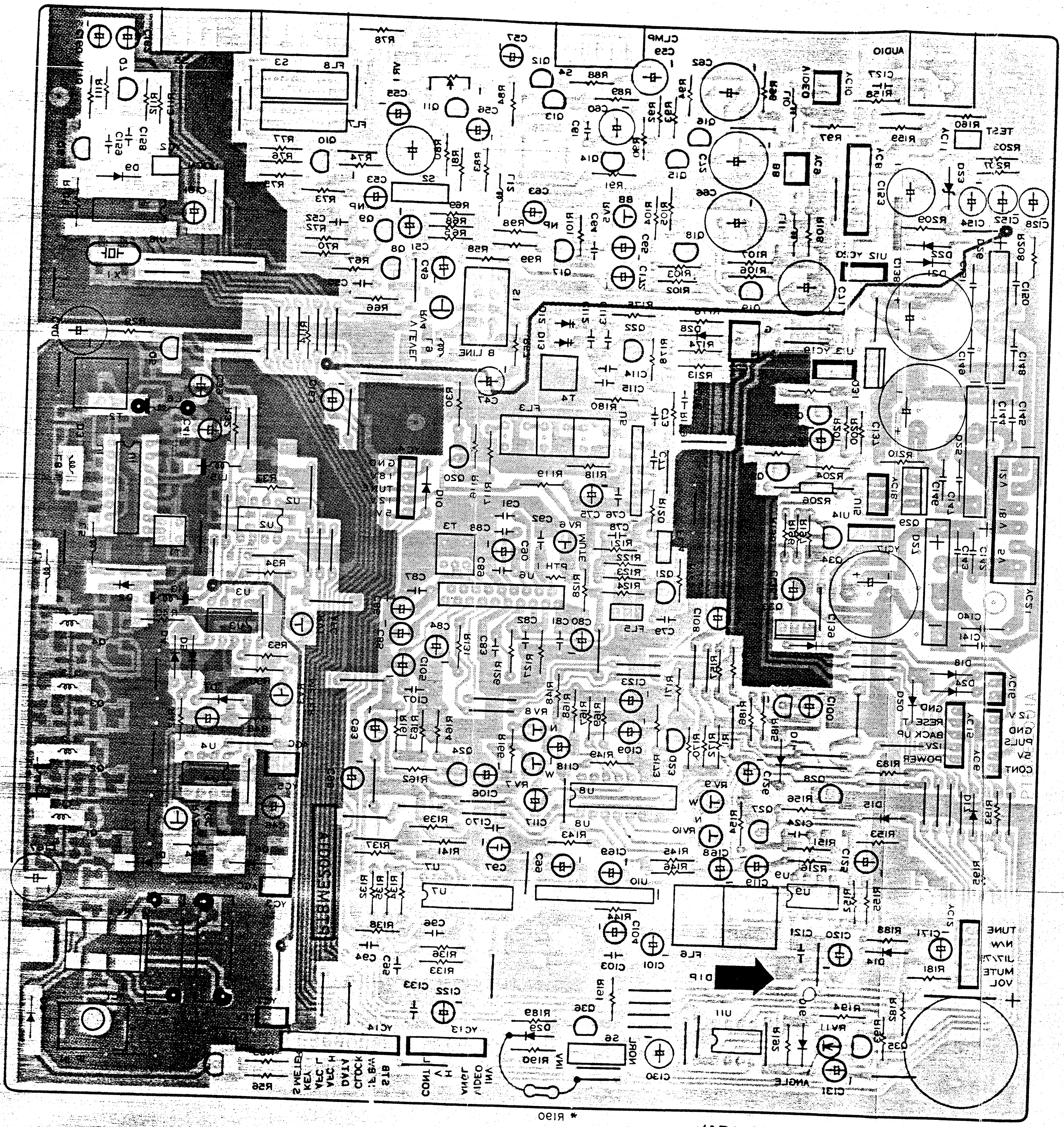

AP6
AP4
AP5
AP8
AP9
AP7

(AP4, APTPWA1001AH) 12V power supply PC board
(AP5, APTPWA1001BH) 18V power supply PC board
(AP6, APTPWA1002AH) 6V, 12V power supply PC board
(AP7, APTVRA1002AH) Volume PC board
(AP8, QPTEEA1003AH) 2nd CW PC board
(AP9, APTZZA1004AH) Terminal PC board

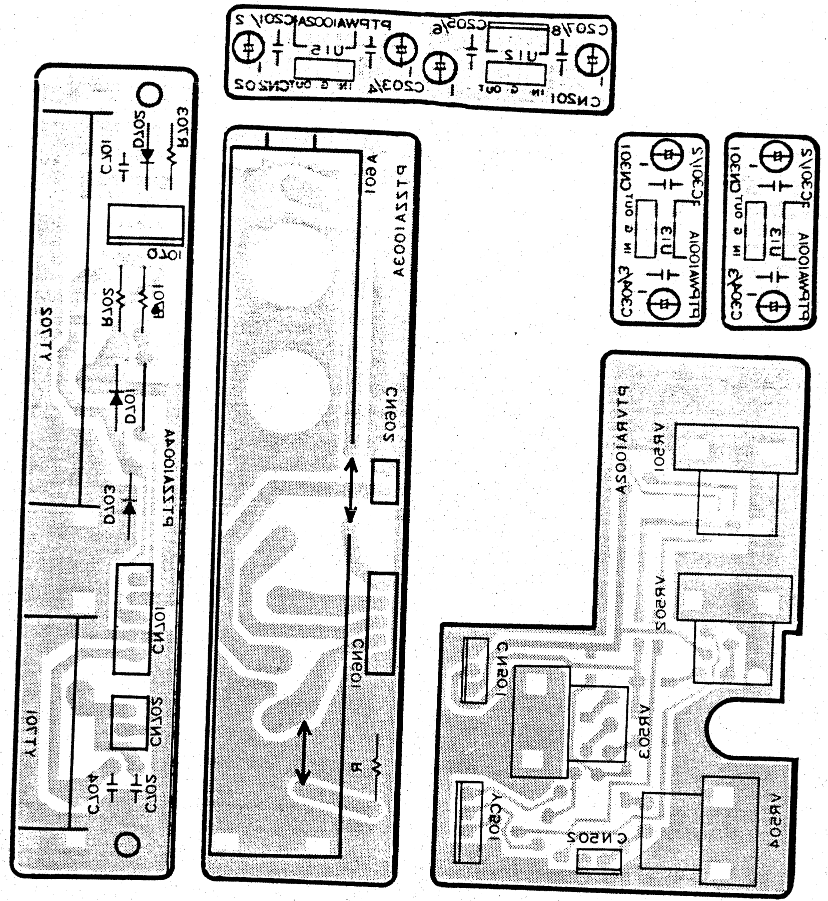
PC BOARD DIAGRAM (3)

Applicable Serial Nos. 6395000 - 6432999

Foil side



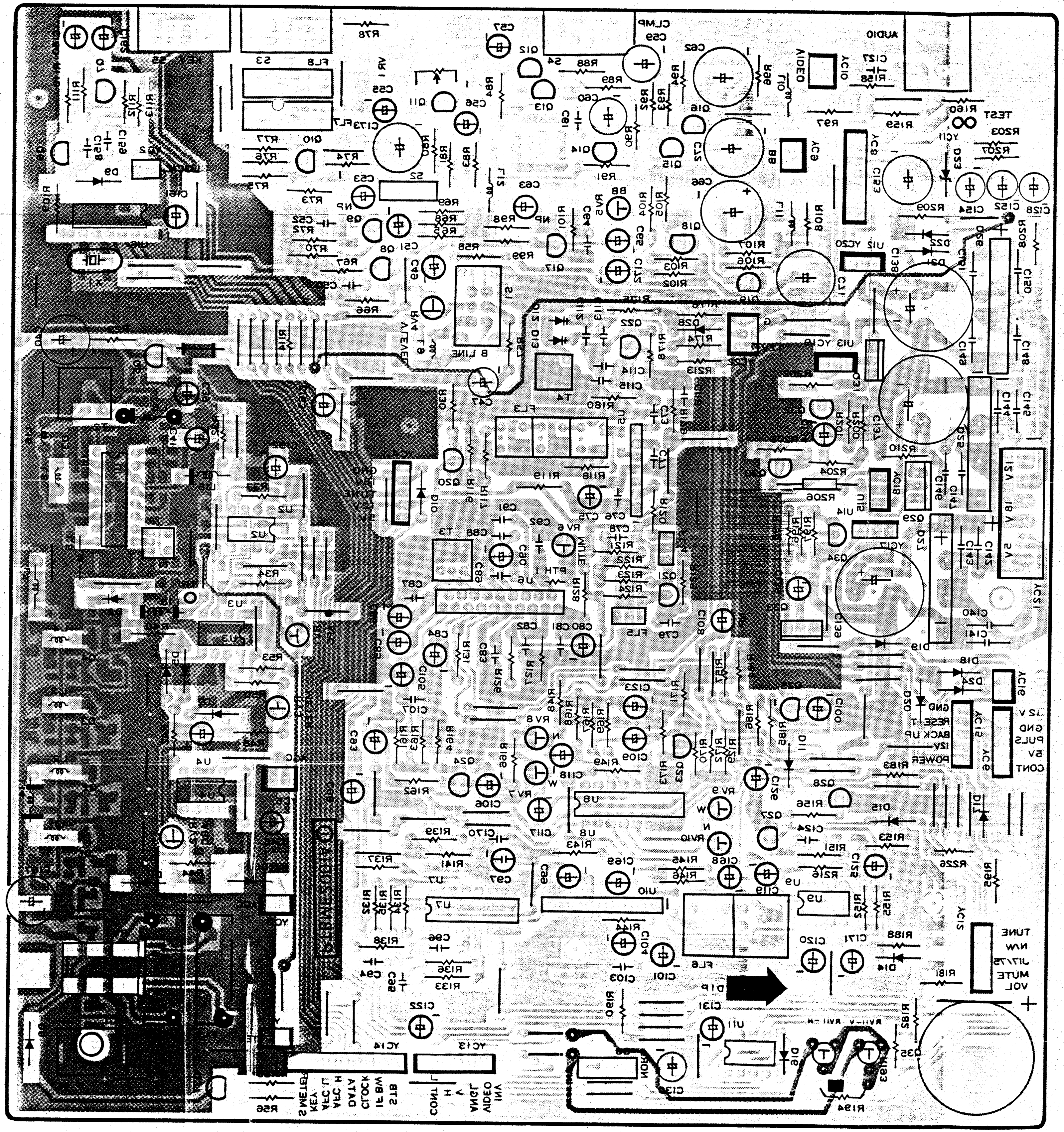
(AP1, APTBME2001AH) Main PC board



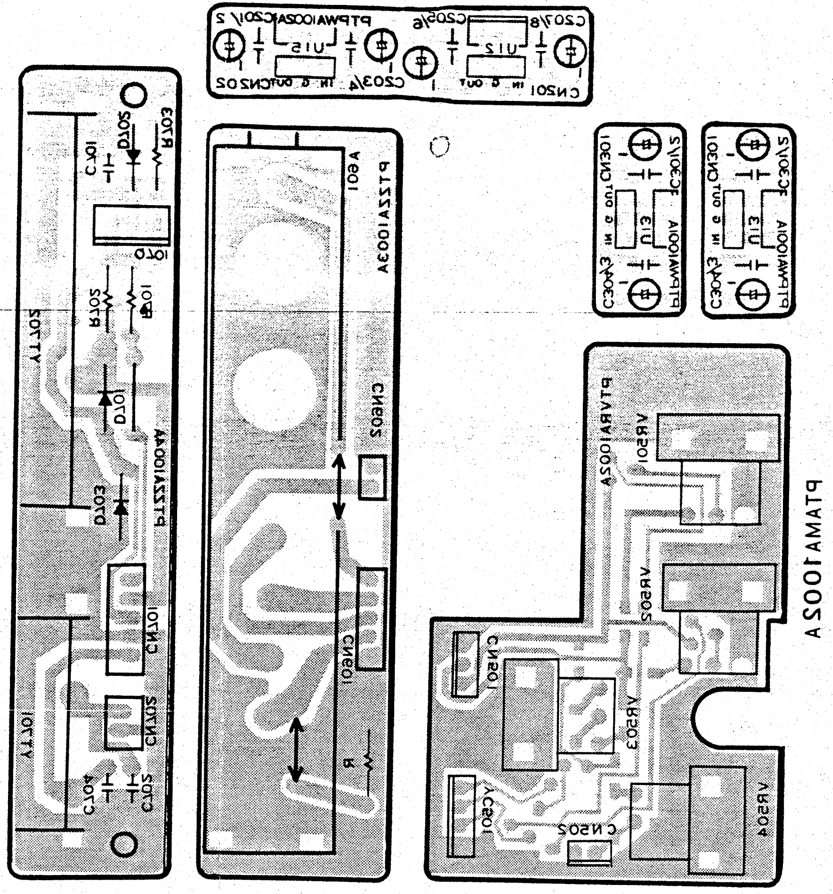
PC BOARD DIAGRAM (4)

Applicable Serial Nos. from 7076000

Foil side

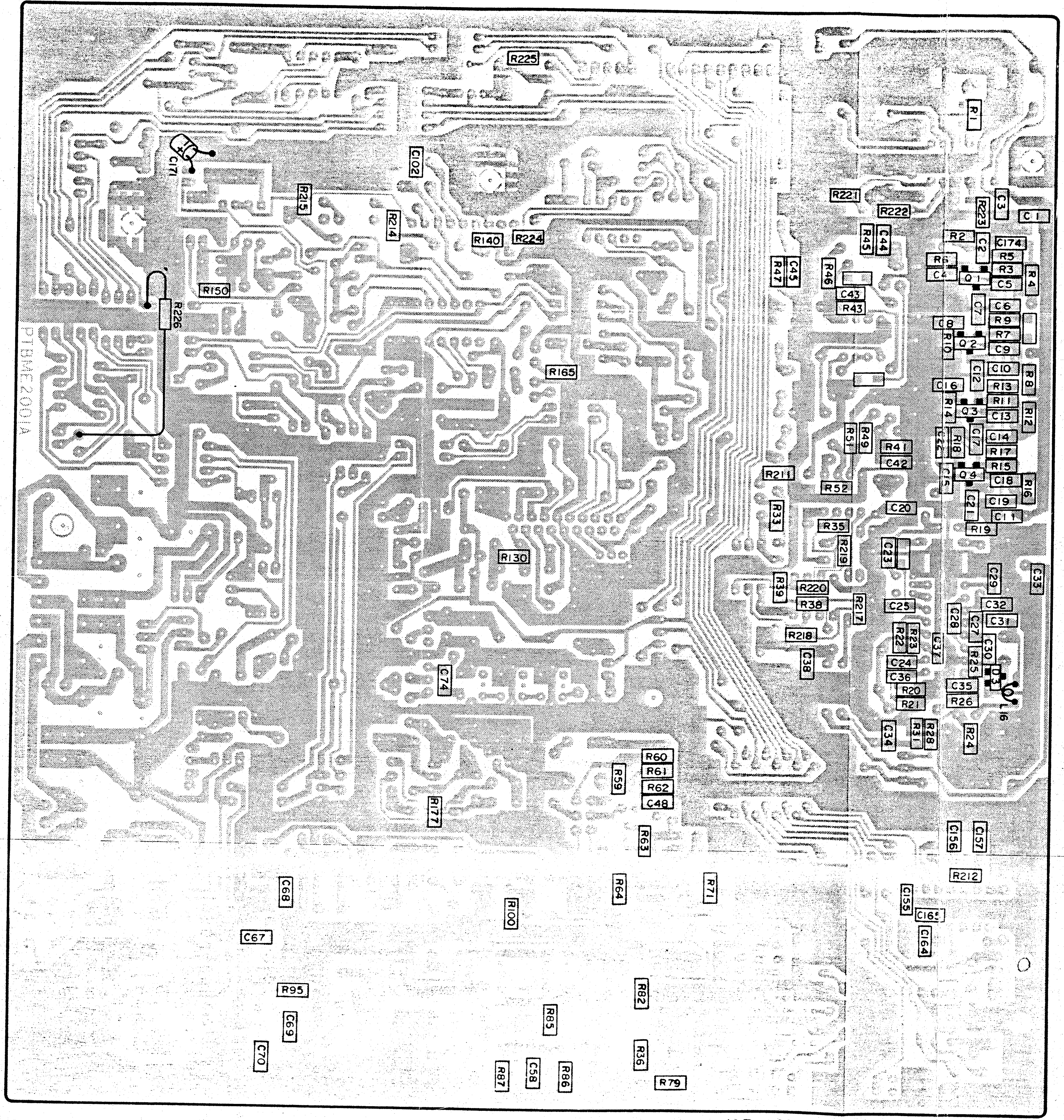


(AP1, APTBME2001AH) Main PC board



PC BOARD DIAGRAM (5) Applicable Serial Nos. 6395000 - 6432999

Chip components

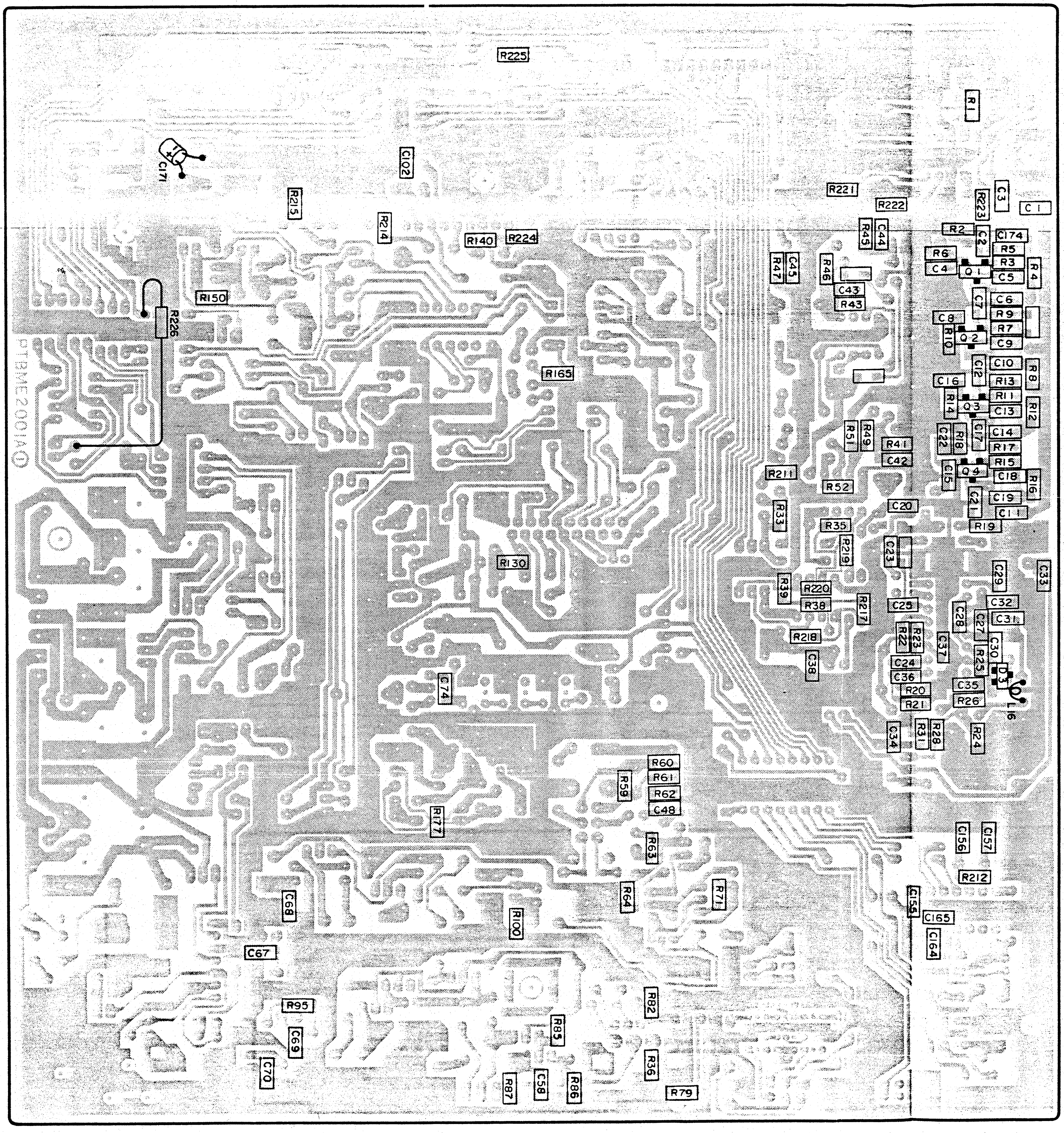

R225
R1
C171
C102
R215
R214
R140
R224
R221
R222
R223
C3
C1
R150
R226
R45
C44
R2
C2
C174
R6
C4
Q1
R5
R3
C5
R4
C45
R47
R46
C43
R43
C7
C6
R9
C8
R10
Q2
R7
C9
PTBME2001A
R165
C12
C10
R8
C16
R13
R11
R14
Q3
C13
R12
R51
R49
R41
C42
R18
C17
C14
R17
R15
R211
R52
C15
Q4
C18
R16
C21
C19
R33
C20
C11
R35
R219
C23
R19
R130
C29
C33
R39
R220
R38
R217
C25
C32
C28
C27
C31
R218
C38
R22
R23
C37
C30
R25
C24
C36
D3
C74
R20
C35
R21
R26
L16
C34
R31
R28
R24
R60
R59
R61
R62
C48
R177
R63
C156
C157
R212
C68
R64
R71
R100
C155
C165
C67
C164
R95
R82
R85
C69
C70
R36
R87
C58
R86
R79

(AP1, APTBME2001AH) Main PC board

PC BOARD DIAGRAM (6)

Applicable Serial Nos. from 7076000

Chip components

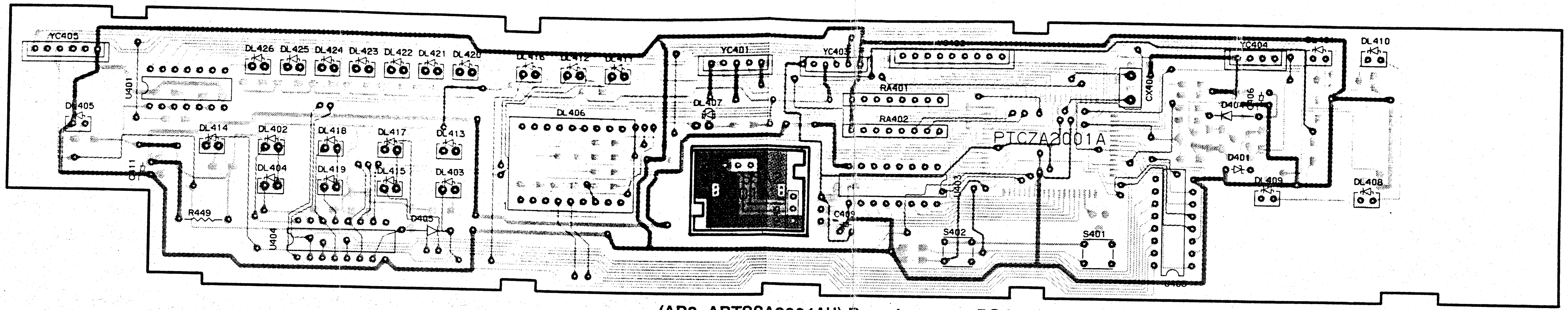

R225
R1
C171
C102
R215
R214
R221
R222
C3
R223
C1
R140
R224
R45
C44
R2
C2
C174
R5
R6
R3
C4
Q1
C5
R4
R47
C45
R46
R150
R226
C43
R43
C7
C6
C8
R9
R10
Q2
R7
C9
PTBME2001A
R165
C16
C12
C10
R13
R8
R14
Q3
R11
C13
R12
R51
R49
C22
R18
C17
C14
R41
C42
R17
C15
Q4
R15
R211
R52
C18
R16
C21
C19
C11
R33
C20
R19
R35
R219
C23
R130
C29
C33
R39
R220
R38
R217
C25
C28
C32
C27
C31
R218
R22
R23
C37
C30
R25
C38
C24
C36
C35
R20
R26
R21
L16
C74
C34
R31
R28
R24
R60
R61
R59
R62
C48
R177
C156
C157
R63
R212
C68
R64
R71
C158
C165
R100
C164
C67
R95
R82
R85
C69
C70
R36
R87
C58
R86
R79

AP1 (APTBME2001AH) Main PC board

PC BOARD DIAGRAM (7)

Applicable Serial Nos. 6395000 - 6432999

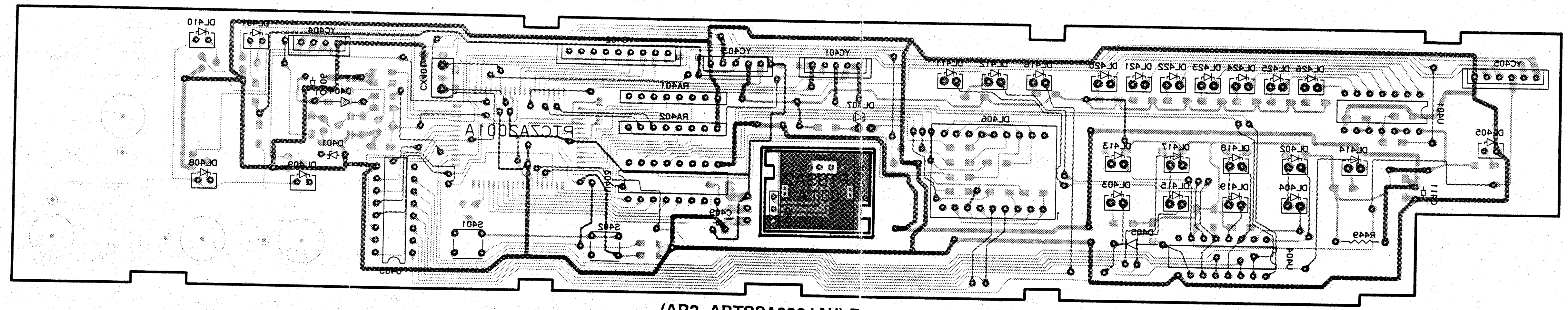
Component side


YC405
DL426
DL425
DL424
DL423
DL422
DL421
DL420
DL416
DL412
DL411
YC401
YC403
YC404
DL410
U401
DL405
DL414
DL402
DL418
DL417
DL413
DL406
DL407
RA401
RA402
PTCZA2001A
CX401
D406
D404
D401
DL409
DL408
DL404
DL419
DL415
DL403
R449
U404
D405
C409
U403
S402
S401
C411

(AP3, APTSSA2001AH) Remote sensor PC board

(AP2, APTCZA2001AQ) CPU PC board

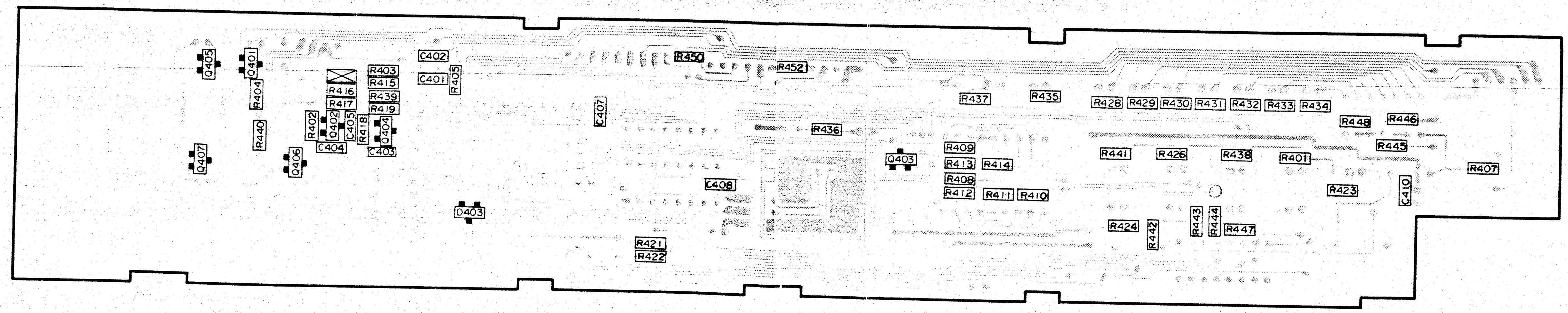
Foil side



(AP3, APTSSA2001AH) Remote sensor PC board

(AP2, APTCZA2001AQ) CPU PC board

Chip components

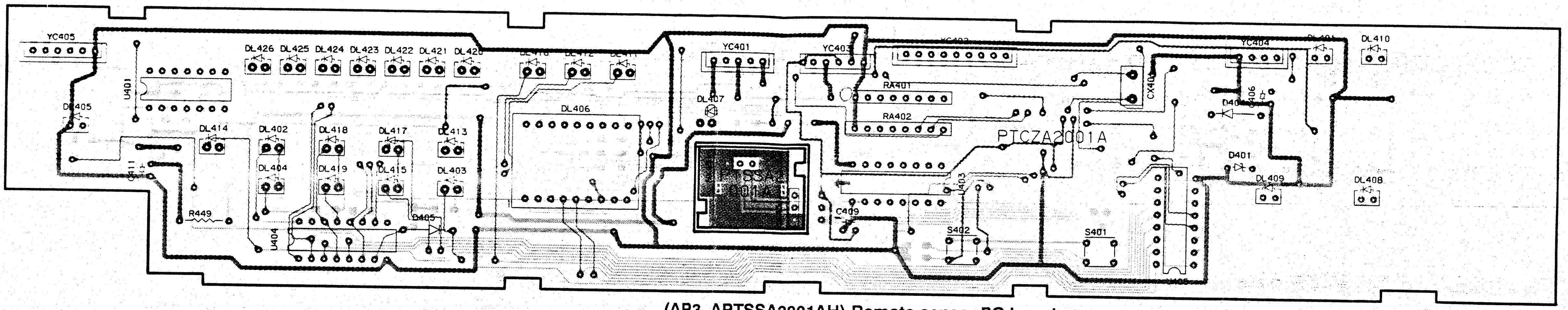

Q405
Q401
R404
R440
Q407
R416
R417
R402
Q402
C405
R418
Q404
C404
C403
R403
R415
R439
R419
C402
C401
R405
Q406
D403
C407
R421
R422
R450
R452
R436
C408
Q403
R437
R435
R409
R413
R414
R408
R412
R411
R410
R428
R429
R430
R431
R432
R433
R434
R441
R426
R438
R401
R424
R442
R443
R444
R447
R448
R446
R445
R423
C410
R407

(AP2, APTCZA2001AQ) CPU PC board

PC BOARD DIAGRAM (8)

Applicable Serial Nos. from 7076000

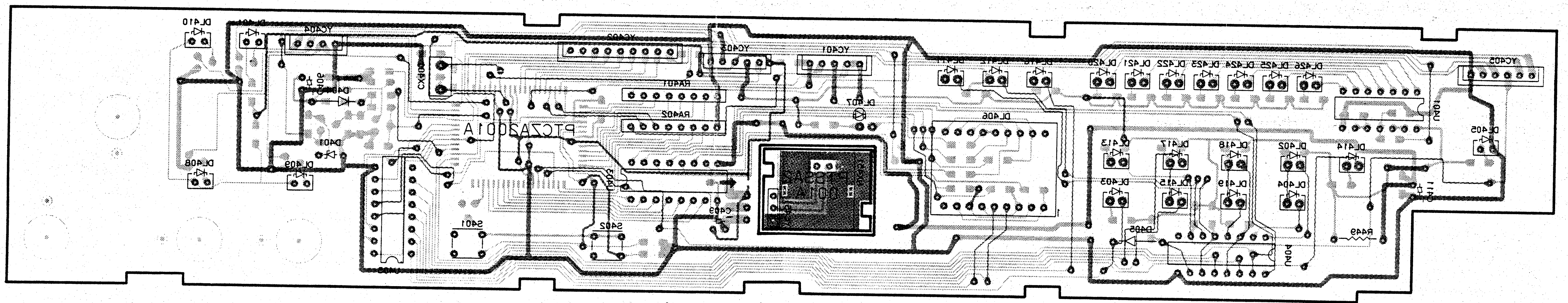
Component side


YC405
DL426 DL425 DL424 DL423 DL422 DL421 DL420
U401
DL405
DL414
DL402
DL418
DL417
DL413
DL404
DL419
DL415
DL403
C411
R449
U404
D405
DL406
YC401
DL407
YC403
RA401
RA402
PTCZA2001A
YC404
CX401
D406
D402
D401
DL410
DL409
DL408
C409
U403
S402
S401
U405

(AP3, APTSSA2001AH) Remote sensor PC board

(AP2, APTCZA2001AQ) CPU PC board

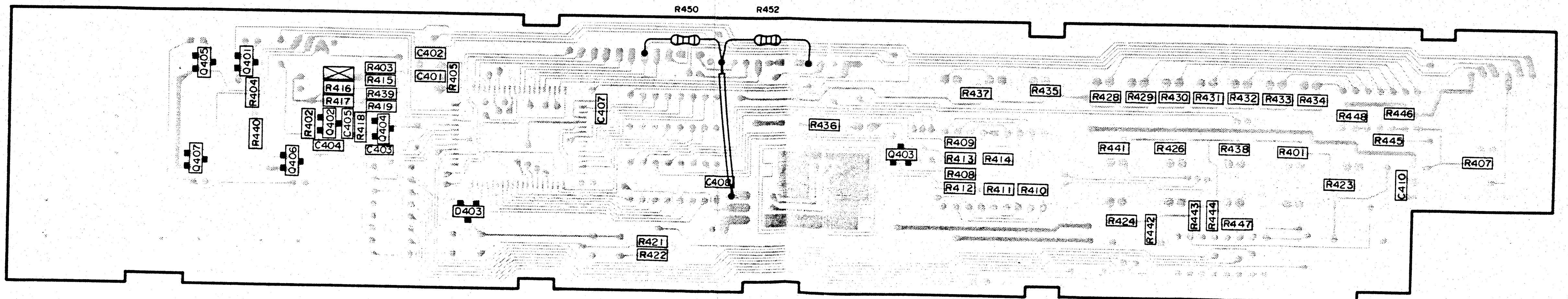
Foil side



(AP3, APTSSA2001AH) Remote sensor PC board

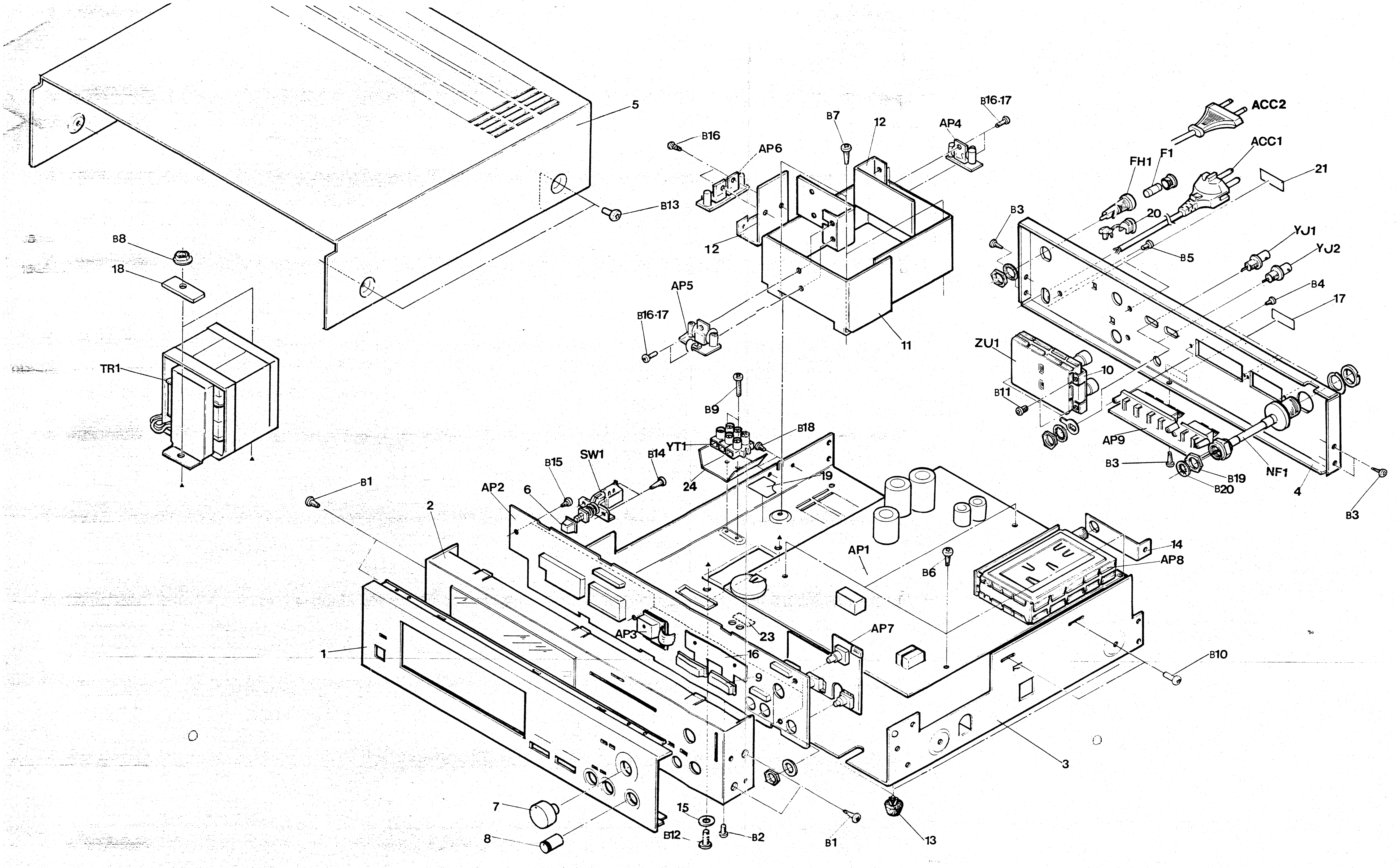
(AP2, APTCZA2001AQ) CPU PC board

Chip components


R450
R452
Q405
Q401
R404
R440
Q407
Q406
R403
R415
R416
R439
R417
R419
R402
Q402
C405
R418
Q404
C404
C403
C402
C401
R405
C407
C408
D403
R421
R422
R437
R435
R436
Q403
R409
R413
R414
R408
R412
R411
R410
R428
R429
R430
R431
R432
R433
R434
R448
R446
R445
R441
R426
R438
R401
R407
R423
C410
R424
R442
R443
R444
R447

(AP2, APTCZA2001AQ) CPU PC board

EXPLODED VIEW


5
B13
B8
18
TR1
B16
AP6
B7
12
AP4
B16·17
ACC2
ACC1
FH1
F1
21
20
B3
B5
YJ1
YJ2
B4
17
12
AP5
B16·17
11
ZU1
10
B11
B9
B18
YT1
B14
B15
SW1
AP9
B3
B19
B20
NF1
4
B3
19
24
B1
2
AP2
6
AP1
B6
14
AP8
23
AP3
AP7
1
16
9
B10
3
7
15
8
B12
B2
B1
13

PARTS LIST (1)

Applicable Serial Nos. 6395000 - 6432999

STRUCTURE OF PART LIST

GENERAL

P.C. BOARD ASSY

(AP1)	APTBME2001AH	Main P.C. Board Assy
(AP2)	APTCZA2001AH	CPU P.C. Board Assy
(AP3)	APTSSA2001AH	Remote sensor P.C. Board Assy
(AP4)	APTPWA1001AH	12V power supply P.C. Board Assy
(AP5)	APTPWA1001BH	18V power supply P.C. Board Assy
(AP6)	APTPWA1002AH	6V, 12V power supply P.C. Board Assy
(AP7)	APTVRA1002AH	Volume P.C. Board Assy
(AP8)	APTZZA1003AH	2nd CW P.C. Board Assy
(AP9)	APTZZA1004AH	Terminal P.C. Board Assy

MISCELLANEOUS

GENERAL

Ref.No.	Part code	Description
1	ME86EAA089	Escutcheon
2	AMSRE80R01	Frame Assy
A	VB865SB005	Front Frame
B	VS758AX001	Filter
C	BNHCL30NSN	Hex. Nut M3
3	MU886SD004	Chassis
4	MB862SK015	Rear Panel
5	MU886SM016	Top Cover
6	VN220SB034	Knob "POWER"
7	VN386SM021	Knob "TUNE"
8	VN260SM002	Knob "TEV"
9	VN310SB007	Push Button L
10	MB652SL004	RF Bracket
11	MB666AD001	Heat Sink
12	MU565AD001	Heat Sink
13	VM177RB005	Foot
14	ML525SL001	Bracket
15	MS707SW001	Washer
16	VS635VF001	Button Sheet
17	VVL411GE53	Label
18	MS317SZ010	Plate
19	VVL321GE29	Voltage Label
20	VM270NB003	Bushing
21	VVL211GEM7	Voltage Label B
AC1	ACCNBQ5GEA	Connection Cord Assy
AC2	ACCNBQ6GEA	Connection Cord Assy
AC3	ACCNBR2GEA	Connection Cord Assy
AC4	ACCNBR6GEA	Connection Cord Assy
ACC1	ACAC298EEA	AC Cord Assy
B1,3,16,17,18	BTPB3008BZ	Bind Tap Screw M3 x 8
B2	BSPB3008NN	Bind Head Screw M3 x 8
B4	BTPB3008PB	Bind T.T Screw M3 x 8
B5	BSPB3005NB	Bind Head Screw M3 x 5
B6,7	BTPB3006TZ	Bind T.T Screw M3 x 6
B8	BNZ1140NSZ	Hex. Nut M4
B9	BTPB3014TZ	Bind T.T Screw M3 x 14
B10,11	BSPB3005NN	Bind Head Screw M3 x 5
B12	BSPB4010NZ	Bind Head Screw M4 x 10
B13	BSP84008NB	Bind HD Screw M4 x 8
B14,15	BTPB3008PZ	Bind T.T Screw M3 x 8
B19	BNHVC95TSN	Hex. Nut
B20	BWU95D0ASN	Lock Washer M9.5 x 13 x 1.0T
F1	YFBQ50103**01	Fuse
FH1	YHF102009**01	Fuse Holder
NF1	ACAD002GEA	Cable Assy
PP1	ACPP077GEA	Pin Plug Cord Assy
SW1	SP01000063*01	Push Switch
TR1	TPH1451301*02	Power Transformer
W1	WU3021DEXX*12	Hi-Wrap Wire
YJ1,2	YJCB0102***01	Coaxal Connector
YT1	YTP0604****01	Terminal
ZU1	ZUMDLL6E12301	RF Modulator MDLL6E123A

AP1. Main P.C. Board Ass'y (APTBME2001AH)

Ref.No.	Part code	Description
	PTBME2001A*01	P.C. Board (without parts)
	YW10001****02	Short Jumper
	VS113FF002	Barrier
	VX221NN017	Support
BT1	ZBL003004**01	Lithium Battery
C1,4,10,11,13,14 16,18,19,20,21 22,23,25,29,34 35,37,38,174	CQB1H102B**01	Ceramic,chip 1000p/50V ±10%
C2,7,12,17,24,36	CQB1H101C**01	Ceramic,chip 100p/50V ±10%
C3,74,102,155, 164,165	CQB1H103B**01	Ceramic,chip 0.01/50V ±10%
C5,6,8,9,42,44,45	CQB1H102B**01	Ceramic,chip 1000p/50V ±10%
C26	CQB1H200C**01	Ceramic,chip 20p/50V ±10%
C27	CQB1H010C**02	Ceramic,chip 1p/50V ±0.25p
C28,30	CQB1H030C**02	Ceramic,chip 3p/50V ±0.25p
C31	CQB1H331C**01	Ceramic,chip 330p/50V ±10%
C32,33,43	CQB1H223B**01	Ceramic,chip 0.022p/50V ±10%
C39,41,75,80,86, 90,97,98,100, 101,123	CEC1C10001*01	Electrolytic 10/16V
C40,173	CEC1C22101*01	Electrolytic 220/16V ±20%
C47,71,72	CEC1C47101*01	Electrolytic 470/16V
C48	CQB1H332B**01	Ceramic,chip 3300p/50V ±10%
C49,51,54,55,57, 65,106,132,172	CEC1C22001*01	Electrolytic 22/16V
C50	CCR1H18100105	Ceramic 180p/50V ±10%
C52	CCR1H30000105	Ceramic 30p/50V ±10%
C53,63	CEC1C10001*07	Electrolytic 10/16V ±20%
C56,126	CEC1C47001*01	Electrolytic 47/16V
C58	CQB1H1510**01	Ceramic,chip 150p/50V ±10%
C59	CEC1A10101*01	Electrolytic 100/10V
C60	CEC1A22101*01	Electrolytic 220/10V
C61,79,82	CKR1H473F0104	Ceramic 0.047/50V ±1%
C62,66	CER1A10201*01	Electrolytic 1000/10V
C64	CCR1H27000105	Ceramic 27p/50V ±10%
C67,68	CQB1H1810**01	Ceramic,chip 180p/50V ±10%
C69,70	CQB1H2210**01	Ceramic,chip 220p/50V ±10%
C73,76,77,78,81 83,87,88,89,91 92,113,116,121 133	CKR1H103F0103	Ceramic 0.01/50V ±1%
C84,85,93,105, 109,117,118,119 168,169	CEC1E4R701*01	Electrolytic 4.7/25V
C94	CFMC1H1220304	Film 1200p/50V ±10%
C95	CFMC1H6820304	Film 6800p/50V ±10%
C96	CCR1H15100105	Ceramic 150p/50V ±10%
C99	CEC1E4R701*01	Electrolytic 4.7/25V
C103	CKC1H102F0103	Ceramic 1000p/50V ±1%
C104,125	CEC1C10101*01	Electrolytic 100/16V
C107	CFMR1H1820304	Film 1800p/50V ±10%
C108	CEC1H01004*06	Electrolytic 1/50V ±20%
C112	CKR1H102B0103	Ceramic 1000p/50V ±0.1%
C114	CCR1H221U0105	Ceramic 220p/50V ±10%
C115	CCR1H820U0105	Ceramic 82p/50V ±10%
C120	CEC1E22001*01	Electrolytic 22/25V
C122,135	CEC0J10101*01	Electrolytic 100/6.3V
C124	CCR1H15000105	Ceramic 15p/50V ±10%
C127	CCR1H221C0101	Ceramic 220p/50V ±10%
C128,130,163	CEC1H01001*01	Electrolytic 1/50V
C131	CEC1H0R225*01	Electrolytic 0.22/50V ±20%
C134	CEC1E47001*01	Electrolytic 47/25V
C137	CER1H22201*02	Electrolytic 2200/50V ±20%
C138	CER1V33201*01	Electrolytic 3300/35V
C139	CER1E33201*02	Electrolytic 3300/25V ±20%
C140,141,142,143 144,145,146,147 148,149,150,151	CKP2H103E0101	Ceramic 0.01/500V +100,-0%
C152	CEC1H33001*01	Electrolytic 33/50V ±20%
C153	CEC1H22101*01	Electrolytic 220/50V ±20%
C154,162	CEC1E10001*01	Electrolytic 10/25V
C156	CQB1H820C**01	Ceramic,chip 82p/50V ±10%
C157	CQB1H470C**01	Ceramic,chip 47p/50V ±10%
C158	CFTC1H1040201	Film 0.1/50V ±5%
C159	CFTR1H3340111	Film 0.33/50V ±5%
C160	CEC1H2R201*01	Electrolytic 2.2/50V
C161	CEC1A22001*01	Electrolytic 22/10V ±20%
C171	CEC1E2R201*01	Electrolytic 2.2/25V ±20%
D1,6,7,8,9,11,14 15,16,17,24,29	DDGMA01****01	Diode GMA-01
D2	DD1SV99****01	Diode 1SV99
D3	DVMA370****01	Diode,varicap MA370
D4,5	DD1SS99****01	Diode 1SS99
D10,18,19,20,21 22	DD1N4003***05	Diode IN4003
D12	DV1SV50****01	Diode,varicap 1SV50
D13	DV1S2208***01	Diode,varicap 1S2208 B
D23	DZMA2220***01	Diode,zener MA2220
D25,26,27	DDRBV402***01	Diode RBV402
D28	NVSV04*****01	Diode,varistor SV04
FL1	TV03002****02	Helical Coil 479.5 MHz
FL2	TV03D02****03	Helical Coil 479.5 MHz
FL3	FLH5000301*01	L.C. Filter 5 MHz
FL4,5	FCB1070402*02	Ceramic Filter 10.7 MHz
FL6	FLL1500102*01	L.C. Filter 15.0 kHz
FL7	FLL5500301*01	L.P. Filter 5.5 MHz
FL8	FLL5000301*01	L.P. Filter 5 MHz
L1,2,3,4	LAJ4065010301	RF Coil
L5,6,7,12,14,15	LPA10107***01	RF Coil 100 uH ±10%
L8	LAA3065050101	RF Coil
L9	LPR68001***03	RF Coil
L10	LPA2R201***03	RF Coil
L11	LPA1R201***03	RF Coil
L13	LSA2B10220101	Choke Coil
L16	LAA40601H0201	RF Coil
PTH1	NT60T102M**01	PTH
Q1,2,3,4	QQ2SC3110**02	Transistor 2SC3110
Q5,8,9,15,17,18 25,36,37	QT2SC536NP*05	Transistor 2SC536 (F)
Q6,7,34	QT2SC458***02	Transistor 2SC458 (C)
Q10,11,12,13,14	QT2SC536NP*05	Transistor 2SC536 (F)
Q16,19	QT2SC2785**01	Transistor 2SC2785 (HF,JF)
Q20,21,22,23,24	QT2SC1675**06	Transistor 2SC1675 (L)
Q27,35	QT2SK128***01	Transistor 2SK128 (P,Q)
Q28	QTDTC143XS*01	IC DTC143X (S)
Q29	QT2SB707***01	Transistor 2SB707 (L)
Q30	QT2SC2235**01	Transistor 2SC2235 (O,Y)
Q31,33	QT2SB824***01	Transistor 2SB824 (Q,R)
Q32	QT2SC945***11	Transistor 2SC945A
	RQB2B000***01	Resistor,chip 1/8W 0 ohm
R1,223	RQB2B100***01	Resistor,chip 1/8W 10 ohm ±5%
R3,7,11,15,225	RQB2B822***01	Resistor chip 1/8W 8.2K ohm ±5%

Ref.No.	Part code	Description
R4,8,12,16,26	RQB2B271***01	Resistor,chip 1/8W 270 ohm ±5%
R5,9,13,17,28,45 46,211	RQB2B222***01	Resistor,chip 1/8W 2.2K ohm ±5%
R6	RQB2B101***01	Resistor,chip 1/8W 100 ohm ±5%
R10,14,18	RQB2B560***01	Resistor,chip 1/8W 56 ohm ±5%
R19,41,165	RQB2B273***01	Resistor,chip 1/8W 27K ohm ±5%
R20,21,22,23	RQB2B510***01	Resistor,chip 1/8W 51 ohm ±5%
R24,85	RQB2B122***01	Resistor,chip 1/8W 1.2K ohm ±5%
R25,60,61,71	RQB2B151***01	Resistor,chip 1/8W 150 ohm ±5%
R29,37,116,119	RDA2E47101*01	Carbon 1/4W 470 ohm ±5%
R30,58,73	RDA2E68101*01	Carbon 1/4W 680 ohm ±5%
R31,86,100	RQB2B153***01	Resistor,chip 1/8W 15K ohm ±5%
R32,42,55,66,70 121,122,148,163 178,181,183,185 201,203,205,207 210	RDA2E10301*01	Carbon 1/4W 10K ohm ±5%
R33	RQB2B392***01	Resistor,chip 1/8W 3.9K ohm ±5%
R34,56,104,113 129,139,141,152 153,156,159,172 196,199,200,204	RDA2E47201*01	Carbon 1/4W 4.7K ohm ±5%
R35,51,52	RQB2B103***01	Resistor,chip 1/8W 10K ohm ±5%
R36	RQB2B821***01	Resistor,chip 1/8W 820 ohm ±5%
R38	RQB2B220***01	Resistor,chip 1/8W 22 ohm ±5%
R39	RQB2B471***01	Resistor,chip 1/8W 470 ohm ±5%
R40,44,57,67,208	RDA2E15101*01	Carbon 1/4W 150 ohm ±5%
R43	RQB2B474***01	Resistor,chip 1/8W 470K ohm ±5%
R47,140,150	RQB2B104***01	Resistor,chip 1/8W 100K ohm ±5%
R48	RDA2E18201*01	Carbon 1/4W 1.8K ohm ±5%
R49,63,79,215 217,219	RQB2B102***01	Resistor,chip 1/8W 1K ohm ±5%
R50,160,162,184	RDA2E22201*01	Carbon 1/4W 2.2K ohm ±5%
R53,189	RDA2E18301*01	Carbon 1/4W 18K ohm ±5%
R59	RQB2B621***01	Resistor,chip 1/8W 620 ohm ±5%
R62	RQB2B390***01	Resistor,chip 1/8W 39 ohm ±5%
R64	RQB2B823***01	Resistor,chip 1/8W 82K ohm ±5%
R65,69,81,89,97 99,103,110,114 117,118,125,131 164,173,174,191 195,216,	RDA2E10201*01	Carbon 1/4W 1K ohm ±5%
R68,74,75,96,108 127,158,166	RDA2E47301*01	Carbon 1/4W 47K ohm ±5%
R72,77	RDA2E91101*01	Carbon 1/4W 910 ohm ±5%
R76	RDA2E82101*01	Carbon 1/4W 820 ohm ±5%
R78,120,128,143 157,193	RDA2E10101*01	Carbon 1/4W 100 ohm ±5%
R80	RDA2E56301*01	Carbon 1/4W 56K ohm ±5%
R82	RQB2B183***01	Resistor,chip 1/8W 18K ohm ±5%

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Ref.No.	Part code	Description
R83,105	RDA2E30101*01	Carbon 1/4W 300 ohm ±5%
R84,98,144	RDA2E39301*01	Carbon 1/4W 39K ohm ±5%
R87	RQB2B561***01	Resistor,chip 1/8W 560 ohm ±5%
R88,94	RDA2E22101*01	Carbon 1/4W 220 ohm ±5%
R90	RDA2E30301*01	Carbon 1/4W 30K ohm ±5%
R91,133,171	RDA2E12301*01	Carbon 1/4W 12K ohm ±5%
R92	RDA2E10501*01	Carbon 1/4W 1M ohm ±5%
R93,102,112,190	RDA2E22301*01	Carbon 1/4W 22K ohm ±5%
R95,221,222	RQB2B750***01	Resistor,chip 1/8W 75 ohm ±5%
R101,124,126,209	RDA2E33101*01	Carbon 1/4W 330 ohm ±5%
R106	RDA2E27101*01	Carbon 1/4W 270 ohm ±5%
R107	RDA2E75001*01	Carbon 1/4W 75 ohm ±5%
R109,226	RDA2E15201*01	Carbon 1/4W 1.5K ohm ±5%
R123,179	RDA2E56101*01	Carbon 1/4W 560 ohm ±5%
R130	RQB2B512***01	Resistor,chip 1/8W 5.1K ohm ±5%
R132,137,138,145 146,151,155,167 168,169,175,186 188,213	RDA2E10401*01	Carbon 1/4W 100K ohm ±5%
R134	RDA2E39401*01	Carbon 1/4W 390K ohm ±5%
R135,136,182	RDA2E51301*01	Carbon 1/4W 51K ohm ±5%
R149	RDA2E27201*01	Carbon 1/4W 2.7K ohm ±5%
R161	RDA2E27301*01	Carbon 1/4W 27K ohm ±5%
R170	RDA2E68301*01	Carbon 1/4W 68K ohm ±5%
R176	RDA2E51201*01	Carbon 1/4W 5.1K ohm ±5%
R177	RQB2B682***01	Resistor,chip 1/8W 6.8K ohm ±5%
R180	RDA2E33201*01	Carbon 1/4W 3.3K ohm ±5%
R192	RDA2E12401*01	Carbon 1/4W 120K ohm ±5%
R194	RDA2E56201*01	Carbon 1/4W 5.6K ohm ±5%
R198	RDA2E43101*01	Carbon 1/4W 430 ohm ±5%
R202	RGA2H10202*01	Metal-Oxide 1/2W 1.0K ohm ±5%
R206	RGA3A10202*01	Metal-Oxide 1W 1.0K ohm ±5%
R212	RQB2B105***01	Resistor,chip 1/8W 1M ohm ±5%
R214	RQB2B911***01	Resistor,chip 1/8W 910 ohm ±5%
R218,220	RQB2B563***01	Resistor,chip 1/8W 56K ohm ±5%
R224	RQB2B224***01	Resistor,chip 1/8W 220K ohm ±5%
R226	RDA2E10301*11	Carbon 1/4W 10K ohm ±5%
RV1,5,11	RP63H47205*01	Potentiometer 4.7K ohm-B
RV2,3	RP63H33205*01	Potentiometer 3.3K ohm-B
RV4	RP63H10105*01	Potentiometer 100 ohm-B
RV6	RP63H22305*01	Potentiometer 22K ohm-B
RV7,8,9,10	RP63H10305*01	Potentiometer 10K ohm-B
RY1	ZR21210201*01	Relay
S1	SS020250***01	Slide Switch
S2,6	SS010212***01	Slide Switch
S3,4,5	SS020209***01	Slide Switch
SA	MS633SD005	Shield L
SB	MS443SD001	Shield S
T1	TR05S51N05*01	RF Coil
T2	TR10SXXX22*01	RF Coil

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Ref.No.	Part code	Description
T3	TR07S31C01*01	RF Coil
T4	TR07S21N05*14	IF Coil
U1	UBDUPC1477C01	IC UPC1477C
U2	UAD5233****M1	IC M5233P
U3,4	UAD6358****Y1	IC LA6358
U5	UBSUPC1037*01	IC UPC1037H
U6	UBTUPC1211*01	IC UPC1211V
U7,8	UCD4053****M1	IC M4053BP
U9	UAD4458****J1	IC NJM4558D
U10	UBSAN5733**01	IC AN5733
U11	UBDNE555***01	IC NE555
U11	UBDNE555***03	IC NE555P
U16	UNDCX7925**01	IC CX-7925B
VA	VS633KF002	Barrier L
VB	VS443KF001	Barrier S
VR1	RVE11202B0201	Rotary Volume 2K ohm-B
X1	XHC4940000205	X'tal OSC 4.000 MHz
YC1	YJP0115****01	RCA Plug
YC2	ACPP078GEA	Pin Plug Cord Assy
YC3,5,7,9,10,16	YCS02C101**01	Junction Jack
YC4,6,12,13,15	YCS05C101**01	Connector
YC8	YCS07C101**01	Connector
YC11	YCS02C122**01	Connector
YC14	YCS09C101**01	9P Junction Jack
YC17,18,19,20,22	YCS03C101**01	3P Junction Jack
YC21	YCS06E104**01	Junction Jack
YC23	YJP0106****04	1P Pin Jack

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AP2. CPU P.C. Board Ass'y (APTCZA2001AQ)

Ref.No.	Part code	Description
	PTCZA2001A*01	P.C. Board (without parts)
C401,402	CQB1H220C**02	Ceramic,chip 22p/50V ±5%
C403,404,405,407 408	CQB1H103B**01	Ceramic,chip 0.01/50V ±10%
C406	CER1HR4703*01	Electrolytic 0.47/50V ±20%
C409	CER1C10003*01	Electrolytic 10/16V ±20%
C410	CQB1H473B**01	Ceramic,chip 0.047/50V ±10%
C411	CER1C10104*01	Electrolytic 100/16V ±20%
CX401	CX40000201*01	Ceramic OSC 4000 kHz
D401	DZMA4047H**01	Diode,zener MA4047H
D403	DQDMA151K**02	Chip,diode MA151K
D404,405	DDGMA01****01	Diode GMA-01

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Ref.No.	Part code	Description
DL401,405,407 411,412,416	DLSLN242RP*01	LED LN242RP
DL402,403,404 408,409,410 413,414,415 417,418,419	DLSLN342GP*01	LED LN342GP
DL406	DLKTLR324**01	LED TLR324
DL420	DLMLN07202P01	LED LN07202P
HA	VQ621SB001	LED Holder A
HB	VQ621SB002	LED Holder B
HC	VQ111RB011	LED Holder
J401	WP03034NC**09	PC Joint
Q401,403,405,406 407	QQFA1A4M***01	Transistor,chip FA1A4M-T1B
Q402	QQ2SB709***12	Transistor 2SB709 (AQ,AR)
Q404	QQ2SD601***15	Transistor 2SD601 (YQ,YR)
R401,404,407,423 424,426,428,429 430,431,432,433 434,435,436,437 438,440,411	RQB2B152***01	Resistor,chip 1/8W 1.5K ohm ±5%
R402,403,419,439	RQB2B103***01	Resistor,chip 1/8W 10K ohm ±5%
R405	RQB2B105***01	Resistor,chip 1/8W 1M ohm ±5%
R408,409,410,411 412,413,414	RQB2B821***01	Resistor,chip 1/8W 820 ohm ±5%
R415,421,422,450 452	RQB2B473***01	Resistor,chip 1/8W 47K ohm ±5%
R416	RQB2B823***01	Resistor,chip 1/8W 82K ohm ±5%
R417	RQB2B104***01	Resistor,chip 1/8W 100K ohm ±5%
R418	RQB2B102***01	Resistor,chip 1/8W 1K ohm ±5%
R442,443,444,447	RQB2B472***01	Resistor,chip 1/8W 4.7K ohm ±5%
R445,446	RQB2B203***01	Resistor,chip 1/8W 20K ohm ±5%
R448	RQB2B153***01	Resistor,chip 1/8W 15K ohm ±5%
R449	RDA2E10101*01	Carbon 1/4W 100 ohm ±5%
RA401,402	RAL08D1030102	R. Array 10K ohm x 6
S401,402	SK01010601701	Key Switch
U401	UBDLB1417**01	IC LB1417
U402	ULF404C****21	IC HD614042FF81
U403	UBDBA618***01	IC BA618
U404,405	UBDM54517**01	IC M54517P
YC401	ACCNBQ9GEA	Connection Cord Assy
YC402	ACCNBQ7GEA	Connection Cord Assy
YC403	ACCNBR1GEA	Connection Cord Assy
YC404	ACCNBR0GEA	Connection Cord Assy
YC405	ACCNBQ8GEA	Connection Cord Assy

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MISCELLANEOUS

Ref.No.	Part code	Description
	KTSRE80RXX	Owner's Manual
	AMSRE80R02	Remote Control Unit
	ZBM301501**01	Battery UM-3, AA
	KKSRE80R01	Display Box
	KNSRE80L01	Snow Box L
	KNSRE80L02	Snow Box R
	KMSRE80R01	Master Carton

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PARTS LIST (2)

Applicable Serial Nos. from 7076000

The parts not listed should be referred to the PARTS LIST (1).

Ref.No.	Part code	Description
3	MU886SD007	Chassis
23	VVL211GEN3	Adjust label
24	VU343VB001	Barrier,terminal
ACC2	ACAC293EEA	AC cord
C130	CEC1C10001*01	Electrolytic 10/16V
C134		Not used
Q35,36	QQFN1A4M***04	Transistor,chip FN1A4M-T4B
R189	RQB2B153***01	Resistor,chip 1/8W 15K ohm ±5%
R190	RDA2E39301*01	Carbon 1/4W 39K ohm ±5%
R191		Not used
R194	RDA2E10201*01	Carbon 1/4W 1K ohm ±5%
R219		Not used
R220		Not used
R225		Not used
R226		Not used
RV11-H	RP63H22311*01	Potentimeter 22K ohm-B
RV11-V	RP63H22311*01	Potentimeter 22K ohm-B